DOE - EM - SRP - 2010
2nd Edition

Environmental Management

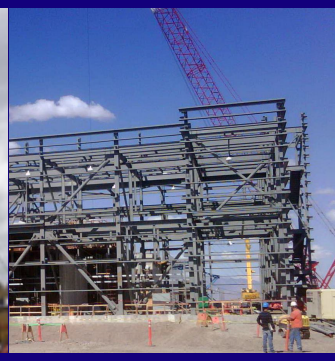
Safety ▪ Performance ▪ Cleanup ▪ Closure

Standard Review Plan (SRP)

High Performance Sustainable Building Design Review Module







Corporate Critical Decision (CD) Review and Approval Framework Associated with Nuclear Facility Capital and Major Construction Projects

March 2010

Office of Environmental Management
U.S. Department of Energy
Washington D. C. 20585

OFFICE OF ENVIRONMENTAL MANAGEMENT

Standard Review Plan (SRP)

High Performance Sustainable Building Design

Review Module

Critical Decision (CD) Applicability					
CD-0	**CD-1**	**CD-2**	**CD-3**	**CD-4**	**Post Operation**
	✓	✓	✓	✓	

March 2010

This Review Module has been piloted at the SRS SWPF and MOX FFF projects.

Lessons learned from the pilot have been incorporated in Review Module

FOREWORD

The Standard Review Plan (SRP)[1] provides a consistent, predictable corporate review framework to ensure that issues and risks that could challenge the success of Office of Environmental Management (EM) projects are identified early and addressed proactively. The internal EM project review process encompasses key milestones established by DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets*, DOE-STD-1189-2008, *Integration of Safety into the Design Process*, and EM's internal business management practices.

The SRP follows the Critical Decision (CD) process and consists of a series of Review Modules that address key functional areas of project management, engineering and design, safety, environment, security, and quality assurance, grouped by each specific CD phase.

This Review Module provides the starting point for a set of corporate Performance Expectations and Criteria. Review teams are expected to build on these and develop additional project-specific Lines of Inquiry, as needed. The criteria and the review process are intended to be used on an ongoing basis during the appropriate CD phase to ensure that issues are identified and resolved.

[1] *The entire EM SRP and individual Review Modules can be accessed on EM website at http://www.em.doe.gov/Pages/Safety.aspx , or on EM's internet Portal at https://edoe.doe.gov/portal/server.pt Please see under /Programmatic Folder/Project Management Subfolder.*

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ACRONYMS

ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
CD	Critical Decision
EISA	Energy Independence and Security Act
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPAct	Energy Policy Act of 2005
FPD	Federal Project Director
HPSBD	High Performance Sustainable Building Design
IESNA	Illuminating Engineering Society of North America
LEED	US Green Building Council's Leadership in Energy and Environmental Design
LEED AP	Leadership in Energy and Environmental Design Accredited Professional
LOI	Lines of Inquiry
OMB	Office of Management and Budget
RM	Review Module
SRP	Standard Review Plan

USDA	U. S. Department of Agriculture
USGBC	US Green Building Council's

I. INTRODUCTION

As required by DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets,* High Performance Sustainable Building Design (HPSBD) Guiding Principles must be applied to the design, construction, and commissioning of new facilities and major renovations of existing facilities (with a minimum value of $5 million). The DOE O 413.3A requirement complies with the Presidential Executive Order 13423, S*trengthening Federal Environmental, Energy, and Transportation Management,* which was signed by the President on January 24, 2007. The HPSBD Guiding Principles are:

- Employ Integrated Design Principles
- Optimize Energy Performance
- Protect and Conserve Water
- Enhance Indoor Environmental Quality
- Reduce Environmental Impact of Materials

The Federal Interagency Working Group is responsible for establishing the performance metric on meeting these HPSPD Guiding Principles used by the US Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) framework. Using the LEED certification program will greatly assist the Federal Project Director (FPD) to ensure that EM new construction activities will meet the federal requirement. The Contract between DOE and contractor should include contract clauses stating that all new and existing projects or facilities should incorporate HPSBD Guiding Principles into the design, construction and operations. Exemption from applying the HPSBD Guiding Principles should be given on a case-by-case basis, such as for new projects or facilities which may have difficulty in obtaining LEED certification or existing facilities which may have difficulty in retrofitting with sustainable design features. There is currently no DOE policy on the exemption process. However, the FPD and his or her site management should have the responsibility to make exemption decision.

Exemptions can be applied deactivation and decommissioning activities that may involve minimal new construction or major renovations. The intent of the federal HPSBD goal is to incorporate the HPSBD Guiding Principles into long term facilities and infrastructure with enduring missions beyond FY2015 that are used for human comfort (i.e. office and administration buildings). Per Energy Policy Act (EPAct) of 2005 facilities with missions involve national security are exempted from these requirements.

Per DOE Order 430.2B, *Departmental Energy, Renewable Energy and Transportation Management,* all facilities shall implement the HPSBD Guiding Principles of Executive Order 13423 to the extent practical and life cycle cost effective for:

- All new construction projects at Critical Decision (CD-1) or lower after October 1, 2008, shall be designed to meet the US Green Buildings Council's LEED "GOLD" certification level

- All EM projects or major renovations (with a value of $5million or more) CD-1 or lower after October 1, 2008; and,
- All EM existing facilities with enduring missions beyond FY 2015.

The HPSBD Guiding Principles should be applied by all EM projects for both nuclear and non-nuclear projects. The FPD must ensure that the all HPSBD Guiding Principles are applied during the design, construction and commissioning of new projects and modification of existing facilities. The FPD should also be cognizant of the Office of Management and Budget (OMB) capital assets principles as defined in OMB Circular No. 11, Part 7, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, August 2009.

II. PURPOSE OF THE REVIEW MODULE

The High Performance Sustainable Building Design (HPSBD) Review Module (RM) is a tool that assists the DOE federal project review teams in evaluating the technical sufficiency for projects that may incorporate HPSBD Guiding Principles at CD-1 through CD-4 for both new construction and existing buildings. This RM provides performance expectations and criteria to ensure that HPSBD Guiding Principles are applied to all EM projects and facilities under review in the CD process.

The HPSBD RM should be used in conjunction with other EM Standard Review Plan RMs and they include the Conceptual Design RM, Preliminary Design RM, Final Design RM, Construction Readiness RM, Commissioning Plan RM, and Readiness Review RM.

III. ROLES AND RESPONSIBILITIES

A critical element of the review of the HPSBD is the qualifications, training and most importantly the experience of the personnel selected to conduct the review. To the maximum extent possible, the personnel selected to participate in the reviews should have “on the ground”, first hand experience in environmental management and facility design. The core review team shall utilize a LEED Accredited Professional (LEED AP), that has been certified through the USGBC professional certification and testing program. The LEED AP can also be the review team co-lead as well as the SME. The core review team personnel should include individuals possessing qualification and experience, including the following areas: project site development; water use efficiency; energy use efficiency; material and resources selection; indoor environmental quality; and design process.

The review teams should become familiar with the US Green Building Council (USGBC) certification requirements for new construction, DOE Order 430.1A and Presidential Executive Order 13423 and when project scope dictates, those requirements associated with major renovations and existing facilities. All team members should have demonstrated knowledge of green building and the LEED rating system and process.

The review teams should also be familiar with the contract governing the project. Contract language should be reviewed regarding incorporation of HPSBD, incentive for certification,

process for exception, and process for negotiating certification credits between DOE and contractor.

Table A.2 shall be used during review of all EM new contraction projects and/or facilities. Table A.3 shall be used during review of all EM existing buildings.

To ensure that EM is doing all that is feasible and cost-effective to incorporate HPSBD Guiding Principles in all its projects and facility review activity, if any aspect of the guiding principles can be integrated into the project, the core review team is strongly encouraged to incorporate that attribute, feature, policy, or program plan into all pertaining maintenance, operations, construction, commissioning, and retro-commissioning documents and procedures. The table below provides a compilation of HPSBD design review roles and responsibilities.

Position	Responsibility
Field Element Manager	Provides support and resources to the FPD and Review Team Leader in carrying out the HPSBD review. This review can be conducted in conjunction with other project reviews, including design, construction, commissioning, and readiness reviews.
	Facilitates the conduct of the HPSBD review. Assigns office space, computer equipment, and support personnel to the team as necessary to accomplish the review in the scheduled time frame
Federal Project Director	Coordinates with the Review Team Leader in the selection of technical areas for the review and in developing the review criteria.
	In conjunction with the Contractor Project Manager, develops the briefing materials and schedule for the review activities.
	Coordinates the review team pre-visit activities and follows up review team requests for personnel to interview or material to review.
	Coordinates the necessary training and orientation activities to enable the review team members to access the facility and perform the review.
	Unless other personnel are assigned, acts as the site liaison with the comments team. Tracks the status of requests for additional information.
	Coordinates the Federal site staff factual accuracy review of the draft report.
	Leads the development of the corrective action plan if required. Tracks the corrective actions resulting from the review.
	Develops a master strategy for incorporating HPSB design in all aspects of project review.
Review Team Leader	In coordination with the Federal Project, selects the areas to be reviewed.
	Based on the project size, complexity and hazards involved, formulates a project review teams with appropriate subject matter experts. The team members should include LEED Accredited Professionals (AP). The LEED AP can also be the review team co-lead as well as the SME.

Position	Responsibility
	Verifies the qualifications: technical knowledge; process knowledge; facility specific information; and independence of the Team Members.
	Leads the HPSBD review pre-visit, if needed.
	Leads the review team in completing the Lines of Inquiry for the various areas to be reviewed.
	Coordinates the development of and forwards to the Federal Project Director, the date call of documents, briefings, interviews, and presentations needed for the review.
	Forwards the final review plan to the appropriate management chain for approval.
	Leads the on-site portion of the review.
	Ensures the review team members complete and document their portions of the review. Coordinates the characterization of the significance of the findings.
	Coordinates the review team handling of factual accuracy comments by Federal and Contractor personnel on the draft report.
	Remains available as necessary to participate in the closure verification of the findings from the draft report.
Review Team Member	Refines and finalizes the Lines of Inquiry for the appropriate area of the review.
	Develops and provides the data call of documents, briefings, interviews, and presentations needed for his or her area of the review.
	Completes training and orientation activities necessary for the review. Conducts any necessary pre visit document review.
	Participates in the on-site review activities, conducts interviews, document reviews, walk downs, and observations as necessary.
	Based on the criteria and review approaches in the Review Plan, assesses whether his or her assigned criteria have been met.
	Documents the results of the review for his or her areas. Prepares the review report.
	Makes recommendations to the Review Team Leader for characterization of findings in his or her area of review.
	Resolves applicable Federal and Contractor factual accuracy comments on the draft review report.
	Prepares the final review report for his or her area of review.
	Concurs in the findings for his or her area of the review.

IV. REVIEW SCOPE AND CRITERIA

The scope of the HPSBD RM is focused on the key HPSB Principles identified in DOE 413.3-6, *High Performance Sustainable Building*, which is consistent with the HPSB principles of the Federal Leadership in High Performance and Sustainable Building Memorandum of Understanding in the design, construction and major modifications, and commissioning of federal buildings. This RM provides the review team with a "straw-man" template from which they may derive and pursue Lines of Inquiry (LOIs) that are applicable to the specific projects. The scope of the HPSBD RM is captured by performance expectations and criteria that are presented in several broad categories listed below. For each category, Appendix A of this RM provides overall performance objectives and then a subset of review criteria that satisfy each performance objective. These performance objectives and review criteria that will provide consistent guidance to review teams to develop their project-specific LOIs.

In conducting the HPSB review, the LEED criteria for HPSB new construction over $5 million should include a pre assessment by establishing a LEED score for the proposed conceptual design at CD-1. The federal requirement is that the new construction project be designed for a minimum of LEED "gold" rating. Using a LEED assessment tool is critical to establishing the LEED score for the building. US Green Building Council has web based tools available for use by federal agencies. Visit www.usgbc.org for more information. DOE has also developed a tool for assessment. Contact the Federal Energy Management Program to get the tool or go to the following website for more information.
http://www1.eere.energy.gov/femp/program/sustainable_workinggroup.html

The HPSBD review is typically conducted in a week or less, which is consistent with other project review areas. It is preferred that the HPSBD is conducted early in the project phase when conceptual design is being developed and the review should be continued in a periodic basis through the entire CD process. The following paragraphs summarize the review topics contained in Appendix A. There are exceptions of the review area on Critical Decisions Requirements and Guidance; the other five review areas are consistent with the HPSBD Guiding Principles.

Critical Decisions Requirements/Guidance

This review area focuses on how the HPSBD Guiding Principles should be integrated into the Critical Decision (CD) activities. The incorporation of HPSBD Principles should be reviewed at each CD phase to support CD approval at CD-1, 2, 3 and 4. This continuous review is consistent with the project reviews during conceptual design, preliminary design, final design, construction, commissioning, and readiness reviews. It may also need to be conducted after the project is in operation mode. Typically, the HPSBD review is an on-site review either conducted by the Headquarter teams and/or the site/project teams.

Employ Integrated Design Principles (HPSBD Guiding Principle [GP] 1)

This review area focuses on whether the project has employed integrated design principles into the planning, design, construction, and commissioning processes. These principles include: the use of a collaborative, integrated and design process; where the incorporation of life-cycle cost-

effective energy, water, materials and indoor environmental quality principles; and the employment of total building commissioning practices.

Optimize Energy Performance (HPSBD GP 2)

The review area focuses on whether the project has employed energy efficiency, on-site renewable energy, measurement and verification, and benchmarking design and programs to help optimize the energy performance of the building.

Protect and Conserve Water (HPSBD GP 3)

This review area focuses on whether the project has adopted and implemented water protection and conservation strategy and programs for indoor water, outdoor water, process water, and water-efficient products.

Enhance Indoor Environmental Quality (HPSBD GP 4)

This review area focuses on whether the project has designed and constructed to enhance indoor environmental quality, including ventilation and thermal comfort, moisture control, low-emitting materials, and environmental tobacco smoke control.

Reduce Environmental Impacts of Materials (HPSBD GP 5)

This review area focuses on whether the project has programs and activities for using designated recycled-content and bio-based content materials and supplies, recycle or salvage of construction, demolition, and land clearing waste, and elimination of use of ozone-depleting compounds during and after construction.

V. REVIEW PLANS AND DOCUMENTATION

The results of a HPSBD review will be used by the DOE FPD and ultimately the Acquisition Executive to help determine whether project funds may be authorized at each Critical Decision approval stage. It is important to clearly document the methods, assumptions and results of the HPSBD review. This review can be conducted as part of other project reviews, such as part of the design, engineering, construction, and readiness reviews. The overall Standard Review Plan (SRP) provides guidelines for preparing a review plan and a final report.

The following activities should be conducted as part of the Review Plan development and documentation/closure of the review:

- Subsequent to the selection, formation and chartering of the review team and receipt and review of the prerequisite documents, assignment of responsibilities for the development of specific Lines of Inquiry (LOIs) should be made.
- The review team members should develop specific LOIs using the Performance Expectations and Criteria listed in the Appendix A of this module.
- The individual LOIs should be compiled and submitted to the review team leader authorizing the review for concurrence prior to starting the review.

- The project-specific review plan should be compiled with a consistent and uniform numbering scheme that provided for a unique identifier for each LOI, arranged by Performance Expectations and Criteria, such that the results of each LOI can be documented and tracked to closure.
- The LOIs should be satisfied via document review and personnel interviews and any combination of these methods. The method used the basis for closure/comment/finding and the result of the inquiry should all be documented and tracked.
- Using a sustainability assessment tool, the core review team shall create documentation of the project or facilities that have a LEED NC (new construction) score or HPSBD Guiding Principles score. Per Presidential Executive Order 13423 and DOE Order 430.2B, 15% of the federal real property (i.e. footprint in gross square feet) shall meet 100% of the HPSB Guiding Principles by FY 2015. Both scores shall be approved by the LEED Accredited Professional used and documented in the SRP review process.

VI. REFERENCE MATERIAL

- Executive Order (EO) 13423, S*trengthening Federal Environmental, Energy, and Transportation Management,* signed by the President on January 24, 2007
- *High Performance and Sustainable Building Guidance*, by the Interagency Sustainability Working Group (ISWG), as a subcommittee of the Steering Committee established by Executive Order (E.O.) 13423, December 2008
- *Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding*.
- DOE's Federal Energy Management Program – High-Performance Building Design, Operations and Maintenance Guidance, http://www1.eere.energy.gov/femp/program/sustainable_guidance.html
- DOE's Federal Energy Management Program – High Performance Building Design Working Group, http://www1.eere.energy.gov/femp/sustainable/index.html
- DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets*
- DOE G 413.3-6, *High Performance Sustainable Building*
- DOE O 450.1A, *Environmental Protection Program*
- DOE O 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*
- Whole Building Design, http://www.wbdg.org/
- US Green Building Council. http://www.usgbc.org
- OMB Circular No. 11, Part 7, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, August 2009

- Energy Independence and Security Act of 2007, Pub. L. No. 110-
  http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ140.110
- Energy Policy Act of 2005
- Energy Independence and Security Act (EISA) of 2007

APPENDIX A – PERFORMANCE OBJECTIVES AND CRITERIA

Table A.1 - Legend of High Performance Sustainable Building Review Topics

Review Topical Area	Identifier
Critical Decision Requirements/Guidance	CR
Employ Integrated Design Principles(HPSBD Guiding Principle [GP]1)	ID
Optimize Energy Performance (HPSBD GP 2)	EP
Protect and Conserve Water (HPSBD GP 3)	WP
Enhance Indoor Environmental Quality (HPSBD GP 4)	QE
Reduce Environmental Impacts of Materials (HPSBD GP 5)	MR

Table A.2 - Performance Objectives and Criteria for New Construction Projects

ID #	Performance Objectives and Criteria[2]	Met?
Critical Decision Requirements/Guidance		
CR-1	In Critical Decision-1, has the project integrated the HPSBD Principles into alternative selection, cost estimates, and conceptual design as required by DOE O 413.3A, Change 1? **(CR-1)**	
	Has the project integrated the HPSBD principles into key project documents, including the Conceptual Design Report, Project Execution Plan, and Acquisition Strategy? **(CR-1.1)**	
	Are there LEED accredited professionals on the Federal Integrated Project Team**? (CR-1.2)**	
	Are there LEED accredited professionals on the contractor's project team? **(CR-1.3)**	
	Does the facility/project use a sustainability assessment tool based on the LEED rating system to certify the project's conformance with the HPSBD Principles? If no, please provide justification for not using the LEED rating system. **(CR-1.4)**	
	If so, what is the potential LEED rating and HPSBD score for the project as defined in DOE G 413.3-6, Attachment B, and Table B-1? **(CR-1.5)**	
	Does the project prepare a Sustainable Design Report? If not, does the Conceptual Design Report describe the sustainable features of the design? **(CD-1.6)**	

[2] *The site should provide the technical bases and assumptions that support the answers provided to each Line of Inquiry. If possible, the review teams should independently verify the technical bases and assumptions.*

ID #	Performance Objectives and Criteria[2]	Met?
	Does the project follow the Whole Building Design concepts in implementing the Executive Order 13423's sustainable building requirements and HPSBD principles? **(CR-1.7)**	
	If the decision is to exempt the project from all or some of the HPSBD Principles, has the exemption decision and rational been documented and who made the decision? **(CR-1.8)**	
	Has the HPSBD requirements incorporated into the Contract? **(CR-1.9)**	
	Has the project registered with the USGBC as a DOE project/facility after it has reached the certification level? **(CR-1.10)**	
CR-2	In Critical Decision-2, has the project integrated the HPSBD principles into the preliminary design as required by DOE O 413.3A, Change 1? **(CR-2)**	
	For preliminary design, has the project decided which sustainable building features can be achieved, based on design tradeoffs between desired features, cost, safety and environmental concerns? **(CR-2.1)**	
	Can the project achieve the intended LEED rating level? **(CR-2.2)**	
	Is the documentation updated to support the LEED rating level certification? **(CR-2.3)**	
	Has the Sustainable Design Report been updated, or the Preliminary Design Report been developed to include the discussion of the sustainable design features? **(CR-2.4)**	
CR-3	In Critical Decision-3, has the project continued the refinement of the HPSBD features into the final design as required by DOE O 413.3A, Change 1? **(CR-3)**	
	For final design, has the project decided which sustainable building features can be further achieved, based on design tradeoffs between desired features, cost, safety and environmental concerns? **(CR-3.1)**	
	Can the project achieve the intended LEED rating level? **(CR-3.2)**	
	Prior to construction, has the project identified the HPSBD-related specifications, such as procurement and use of environmentally preferable materials? **(CR-3.3)**	
	Has the Sustainable Design Report been updated, or the Final Design Report been developed to include the discussion of the sustainable design features? **(CR-3.4)**	
	Are commissioning requirements related to HPSBD identified in the construction documents? **(CR-3.5)**	
	Have the final design review and construction readiness review confirm that the HPSBD design features are final, been procured, and procedures exist/or being developed for their construction and installation? **(CR-3.6)**	
CR-4	Prior to Critical Decision-4 and post CD-4, has the project HPSBD features been procured, constructed, commissioned, and reviewed as required by DOE O 413.3A, Change 1? **(CR-4)**	
	Does the Commissioning Plan include the testing of HPSBD structures, systems, and components to ensure they perform as designed and are optimized for energy efficiency, resource conservation, and occupant satisfaction? **(CR-4.1)**	
	Can the project achieve the intended LEED rating level? **(CR-4.2)**	

ID #	Performance Objectives and Criteria[2]	Met?
	Has the Sustainable Design Report been updated, or the Final Design Report been updated to include the discussion of the sustainable design features? Does the report document how each HPSBD feature been tested and validated, including commissioning requirements? **(CR-4.3)**	
Employ Integrated Design Principles (GP 1)		
ID-1	Does the project use a collaborative, integrated planning and design process? **(ID-1)**	
	Does the project have an integrated project team beginning at CD-1 and continuing through CD-4? **(ID-1.1)**	
	Does the project establish performance goals for sitting, energy, water, materials, and indoor environmental quality along with other design goals? **(ID-1.2)**	
	Does the project strategy ensure the incorporation of these design goals through conceptual, preliminary, and final design? **(ID-1.3)**	
	Does the HPSBD design concepts take into account all phases of the facility life cycle, including eventual decommissioning? **(ID-1.4)**	
ID-2	Is commissioning under the LEED framework considered as part of the integrated design principles? **(ID-2)**	
	Are commissioning practices as defined under the LEED framework tailored to the size and complexity of the building and its system components in order to verify their performance and help ensure the design requirements are met? **(ID-2.1)**	
	Is there a designated LEED commissioning authority as defined under the LEED framework to oversee the commissioning activities and documentation preparations? **(ID-2.2)**	
Optimize Energy Performance (GP 2)		
EP-1	Does the project have an energy efficiency program? **(EP-1)**	
	Has the project established a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the Energy Star targets for new construction and major renovation where applicable? **(EP-1.1)**	
	For new construction project, has a goal been established to reduce the energy cost budget by 30% compared to the baseline building performance rating established by industry standards, including ANSI, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE), and Illuminating Engineering Society of North America (IESNA)? **(EP-1.2)**	
	For major renovations, has a goal been established to reduce the energy cost by 20% below pre-renovations 2003 baseline? **(EP-1.3)**	
EP-2	Does the project have an on-site renewable energy program? **(EP-2)**	
	Has the project established a goal of meeting 30% of the hot water demand through the installation of solar hot water heaters, when lifecycle cost effective, as required by the EISA Section 523? **(EP-2.1)**	
	Has the project implemented renewable energy generation projects, when lifecycle cost effective, as required by Executive Order 13423? **(EP-2.2)**	
EP-3	Does the project have an energy measurement and verification program? **(EP-3)**	

ID #	Performance Objectives and Criteria[2]	Met?
	Has the project installed building level electricity meters in new construction and renovation projects to track and continuously optimized performance, as required by Energy Act of 2005 Section 103? **(EP-3.1)**	
	Has the project installed meters for natural gas and steam, if applicable, as required by Energy Independence and Security Act (EISA) Section 434? **(EP-3.2)**	
EP-4	Does the project have an energy benchmarking program? **(EP-4)**	
	Has the project established a benchmarking program to compare actual performance data from the first year of operation with the energy design target? **(EP-4.1)**	
EP-5	Does the project encourage the development and use of grid-source, renewable energy technologies on a net zero pollution bases? **(EP-5)**	
Protect and Conserve Water (GP 3)		
WP-1	Does the project have an indoor water protection and conservation program? **(WP-1)**	
	Has the project established a strategy that in aggregate use a minimum of 20% less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992, Uniform Plumbing Codes 2006, and the international Plumbing Codes 2006 fixture performance requirements? **(WP-1.1)**	
WP-2	Does the project have an outdoor water protection and conservation program? **(WP-2)**	
	Has the project employed outdoor water efficient landscape and irrigation strategies for reducing outdoor potable water use by a minimum of 50% over that consumed by conventional means (plant species and plant densities)? **(WP-2.1)**	
	Has the project established design and construction strategies that reduce storm water runoff and polluted site water runoff? **(WP-2.2)**	
	Has the project installed water meters for locations with significant outdoor water use? **(WP-2.3)**	
WP-3	Does the project have a water processing program? (WP-3)	
	Has the project established a lifecycle cost effective water conservation measures program for processing potable water to improve building's energy efficiency, as required by Energy Policy Act of 2005, Section 109? **(WP-3.1)**	
WP-4	Does the project use water-efficient products? **(WP-4)**	
	Does the project specify the use of Environmental Protection Agency (EPA)'s WaterSense-labeled products or other water conserving products, where available? **(WP-4.1)**	
	Has the project selected irrigation/landscaping contractors who are certified through a WaterSense labeled program? **(WP-4.2)**	
Enhance Indoor Environmental Quality (GP 4)		
QE-1	Does the project design and operate the facility for ventilation and thermal comfort? **(QE-1)**	
	Does the project meet ASHAE Standard 55-2004 for Thermal Environmental Conditions for Human Occupancy? **(QE-1.1)**	
	Does the project meet ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality? **(QE-1.2)**	

ID #	Performance Objectives and Criteria[2]	Met?
QE-2	Does the project design and operate the facility for moisture control? **(QE-2)**	
	Has the project established and implemented a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks? **(QE-2.1)**	
QE-3	Does the project design and operate the facility for day lighting? **(QE-3)**	
	Does the project have design consideration to achieve a minimum daylight factor of 2% (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks? **(QE-3.1)**	
	Does the project have design consideration to provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control? **(QE-3.2)**	
QE-4	Does the project design the facility using low-emitting materials? **(QE-4)**	
	Has the project specified materials and products with low pollutant emissions, including composite wood products, adhesives, sealants, interior pants and finishes, carpet systems, and furnishings? **(QE-4.1)**	
QE-5	Does the project have a program to protect indoor air quality during construction? **(QE-5)**	
	Does the project have a program to protect indoor air quality during construction per LEED criteria for new construction by following the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 2007? **(QE-5.1)**	
QE-6	Does the project design and operate the facility for environmental tobacco smoke control? **(QE-6)**	
	Does the project implement a policy and post signage indicating the smoking is prohibited within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes during building occupancy? **(QE-6.1)**	
QE-7	Does the project provide a high level of thermal comfort system controlled by individual occupants or by specific groups in multi-occupant spaces to promote the productivity, comfort and well being of building occupants? **(QE-7)**	
	Does the project provide a comfortable thermal environment that supports the productivity and well being of building occupants? **(QE-7.1)**	
	Does the project owner provide an assessment to building occupants for the thermal comfort over time? **(QE-7.2)**	
Reduce Environmental Impacts of Materials (GP 5)		
MR-1	Does the project specify the recycled content of materials in the design per Section 6002 of the Resource Conservation and Recovery Act? **(MR-1)**	
	For EPA-designated products, do they meet or exceed EPA's recycled content recommendations? (MR-1.1) EPA's recycled content product designation and recycled content recommendations are available on EPA's Comprehensive Procurement Guidelines web site at www.epa.gov/cpg	

ID #	Performance Objectives and Criteria[2]	Met?
	For other products, do the materials with recycled content such that the sum of post-consumer recycled content plus ½ of the pre-consumer content constitutes at least 10% of the total value of the materials in the project? **(MR-1.2)**	
MR-2	Does the project specify the biobased content of materials in the design per Section 9002 of the Farm Security and Rural Investment Act? **(MR-2)**	
	For USDA-designated products, do they meet or exceed USDA's biobased content recommendations? **(MR-2.1)** USDA's biobased product designations and biobased content recommendations are available on USDA's BioPreferred web site at www.usda.gov/biopreferred	
	For other products, does the project use biobased products made from rapidly renewable resources and certified sustainable wood products? **(MR-2.2)**	
MR-3	Does the project specify waste and materials management in its planning, design, and construction activities? **(MR-3)**	
	Have adequate space, equipment, and transport accommodations for recycling been incorporated in the design? **(MR-3.1)**	
	Have local recycling and salvage operations been identified during the project planning phase that could process project-related construction and demolition materials? **(MR-3.2)**	
	During construction, has the project established a goal of at least 50% percent of the non-hazardous construction, demolition and land clearing materials can be recycled or salvaged? **(MR-3.3)**	
MR-4	Does the project specify the use of ozone depleting compounds in the design? **(MR-4)**	
	Does the project eliminate the use of ozone depleting compounds during and after construction where alternative environmental preferable products are available, consistent with either the Montreal Protocol or Title VI of the Clean Air Act Amendments of 1990, or equivalent to overall air quality benefits that take into account life cycle impacts? **(MR-4.1)**	
MR-5	Does the project specify the use of environmental preferable products in the design?	
	Are the products selected that have a lesser or reduced effect on human and the environment over their lifecycle when compared with competing products or services that serve the same purpose? **(MR-5.1)** For recommendations, refer to the Federal Green Construction Guide for Specifies at www.wbdg.org/design/greenspec.php	
MR-6	Does the project promote the increase demand for building materials and products that are extracted and manufactured within the region? **(MR-6)**	
	Does the project support the use of indigenous resources and reducing the environmental impacts resulting from transportation? **(MR-6.1)**	
	Do the materials from the harvest location to the manufacturing location exceed 500 miles? **(MR-6.2)**	

ID #	Performance Objectives and Criteria[2]	Met?
	Is the distance from the manufacturing location to the project location exceeds 500 miles? **(MR-6.3)**	
	During the purchasing stage, has the project established a goal of at least 20% of the actual materials cost excluding labor and equipment? **(MR-6.4)**	

Table A.3 - Performance Objectives and Criteria for Existing Buildings

ID #	Performance Objectives and Criteria[3]	Met?
Critical Decision Requirements/Guidance		
CR-1	In Critical Decision-1, has the project integrated the HPSBD Principles into alternative selection, cost estimates, and conceptual design as required by DOE O 413.3A, Change 1? **(CR-1)**	
	Has the project integrated the HPSBD principles into key project documents, including the Conceptual Design Report, Project Execution Plan, and Acquisition Strategy? **(CR-1.1)**	
	Are there LEED accredited professionals on the Federal Integrated Project Team? **(CR-1.2)**	
	Are there LEED accredited professionals on the contractor's project team? **(CR-1.3)**	
	Does the facility/project use a sustainability assessment tool based on the LEED rating system to certify the project's conformance with the HPSBD Principles? If no, please provide justification for not using the LEED rating system. **(CR-1.4)**	
	If so, what is the potential LEED rating and HPSBD score for the project as defined in DOE G 413.3-6, Attachment B, Table B-1? **(CR-1.5)**	
	Does the project prepare a Sustainable Design Report? If not, does the Conceptual Design Report describe the sustainable features of the design? **(CD-1.6)**	
	Does the project follow the Whole Building Design concepts in implementing the Executive Order 13423's sustainable building requirements and HPSBD principles? **(CR-1.7)**	
	If the decision is to exempt the project from all or some of the HPSBD Principles, has the exemption decision and rational been documented and who made the decision? **(CR-1.8)**	
	Has the HPSBD requirements incorporated into the Contract? **(CR-1.9)**	
	Has the project registered with the USGBC as a DOE project or facility after it has reached the certification level? **(CR-1.10)**	
CR-2	In Critical Decision-2, has the project integrated the HPSBD principles into the preliminary design as required by DOE O 413.3A, Change 1? **(CR-2)**	

[3] The review team should request that the technical basis and assumptions be provided in support of the answers provided for each Line of Inquiry. If needed, the reviewer(s) should perform independent verification of the technical basis and assumptions.

ID #	Performance Objectives and Criteria[3]	Met?
	For preliminary design, has the project decided which sustainable building features can be achieved, based on design tradeoffs between desired features, cost, safety and environmental concerns? **(CR-2.1)**	
	Can the project achieve the intended LEED rating level? **(CR-2.2)**	
	Is the documentation updated to support the LEED rating level certification? **(CR-2.3)**	
	Has the Sustainable Design Report been updated, or the Preliminary Design Report been developed to include the discussion of the sustainable design features? **(CR-2.4)**	
CR-3	In Critical Decision-3, has the project continued the refinement of the HPSBD features into the final design as required by DOE O 413.3A, Change 1? **(CR-3)**	
	For final design, has the project decided which sustainable building features can be further achieved, based on design tradeoffs between desired features, cost, safety and environmental concerns? **(CR-3.1)**	
	Can the project achieve the intended LEED rating level? **(CR-3.2)**	
	Prior to construction, has the project identified the HPSBD-related specifications, such as procurement and use of environmentally preferable materials? **(CR-3.3)**	
	Has the Sustainable Design Report been updated, or the Final Design Report been developed to include the discussion of the sustainable design features? **(CR-3.4)**	
	Are commissioning requirements related to HPSBD identified in the construction documents? **(CR-3-5)**	
CR-4	In Critical Decision-4 and post CD-4, has the project HPSBD features been procured, constructed, commissioned, and reviewed as required by DOE O 413.3A, Change 1? **(CR-4)**	
	Have the final design review and construction readiness review confirm that the HPSBD design features are final, been procured, and procedures exist/or being developed for their construction and installation? **(CR-4.1)**	
	Does the Commissioning Plan include the testing of HPSBD structures, systems, and components to ensure they perform as designed and are optimized for energy efficiency, resource conservation, and occupant satisfaction? **(CR-4.2)**	
	Can the project achieve the intended LEED rating level? **(CR-4.3)**	
	Has the Sustainable Design Report been updated, or the Final Design Report been updated to include the discussion of the sustainable design features? Does the report document how each HPSBD feature been tested and validated, including commissioning requirements? **(CR-4.4)**	
Employ Integrated Design Principles (GP 1)		
ID-1	Does the project use a collaborative, integrated planning and design process? **(ID-1)**	
	Does the project have an integrated project team beginning at CD-1 and continuing through CD-4? **(ID-1.1)**	
	Does the project establish performance goals for siting, energy, water, materials, and indoor environmental quality along with other design goals? **(ID-1.2)**	
	Does the project strategy ensure the incorporation of these design goals through conceptual, preliminary, and final design? **(ID-1.3)**	

ID #	Performance Objectives and Criteria[3]	Met?
	Does the HPSBD design concepts take into account all phases of the facility life cycle, including eventual decommissioning? **(ID-1.4)**	
ID-2	Is commissioning under the LEED framework considered as part of the integrated design principles? **(ID-2)**	
	Are commissioning practices as defined under the LEED framework tailored to the size and complexity of the building and its system components in order to verify their performance and help ensure the design requirements are met? **(ID-2.1)**	
	Is there a designated LEED commissioning authority as defined under the LEED framework to oversee the commissioning activities and documentation preparations? **(ID-2.2)**	
Energy Performance Optimization		
EP-1	Does the project have an energy efficiency program? **(EP-1)**	
	Has the project established a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the Energy Star targets for new construction and major renovation where applicable? **(EP-1.1)**	
	For new construction project, has a goal been established to reduce the energy cost budget by 30% compared to the baseline building performance rating established by industry standards, including American National Standards Institute (ANSI), ASHRAE, and IESNA? **(EP-1.2)**	
	For major renovations, has a goal been established to reduce the energy cost by 20% below pre-renovations 2003 baseline? **(EP-1.3)**	
EP-2	Does the project have an on-site renewable energy program? **(EP-2)**	
	Has the project established a goal of meeting 30% of the hot water demand through the installation of solar hot water heaters, when lifecycle cost effective, as required by the EISA Section 523? **(EP-2.1)**	
	Has the project implemented renewable energy generation projects, when lifecycle cost effective, as required by Executive Order 13423? **(EP-2.2)**	
EP-3	Does the project have an energy measurement and verification program? **(EP-3)**	
	Has the project installed building level electricity meters in new construction and renovation projects to track and continuously optimized performance, as required by Energy Act of 2005 Section 103? **(EP-3.1)**	
	Has the project installed meters for natural gas and steam, if applicable, as required by Energy Independence and Security Act (EISA) Section 434? **(EP-3.2)**	
EP-4	Does the project have an energy benchmarking program? **(EP-4)**	
	Has the project established a benchmarking program to compare actual performance data from the first year of operation with the energy design target? **(EP-4.1)**	
EP-5	Does the project encourage the development and use of grid-source, renewable energy technologies on a net zero pollution bases? **(EP-5)**	
Water Protection and Conservation		
WP-1	Does the project have an indoor water protection and conservation program? **(WP-1)**	

ID #	Performance Objectives and Criteria[3]	Met?
	Has the project established a strategy that in aggregate use a minimum of 20% less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992, Uniform Plumbing Codes 2006, and the international Plumbing Codes 2006 fixture performance requirements? **(WP-1.1)**	
WP-2	Does the project have an outdoor water protection and conservation program? **(WP-2)**	
	Has the project employed outdoor water efficient landscape and irrigation strategies for reducing outdoor potable water use by a minimum of 50% over that consumed by conventional means (plant species and plant densities)? **(WP-2.1)**	
	Has the project established design and construction strategies that reduce storm water runoff and polluted site water runoff? **(WP-2.2)**	
	Has the project installed water meters for locations with significant outdoor water use? **(WP-2.3)**	
WP-3	Does the project have a water processing program? **(WP-3)**	
	Has the project established a lifecycle cost effective water conservation measures program for processing potable water to improve building's energy efficiency, as required by Energy Policy Act of 2005, Section 109? **(WP-3.1)**	
WP-4	Does the project use water-efficient products? **(WP-4)**	
	Does the project specify the use of EPA's WaterSense-labeled products or other water conserving products, where available? **(WP-4.1)**	
	Has the project selected irrigation/landscaping contractors who are certified through a WaterSense labeled program? **(WP-4.2)**	
Indoor Environmental Quality Enhancement		
QE-1	Does the project design and operate the facility for ventilation and thermal comfort? **(QE-1)**	
	Does the project meet ASHAE Standard 55-2004 for Thermal Environmental Conditions for Human Occupancy? **(QE-1.1)**	
	Does the project meet ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality? **(QE-1.2)**	
QE-2	Does the project design and operate the facility for moisture control? **(QE-2)**	
	Has the project established and implemented a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks? **(QE-2.1)**	
QE-3	Does the project design and operate the facility for day lighting? **(QE-3)**	
	Does the project have design consideration to achieve a minimum daylight factor of 2% (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks? **(QE-3.1)**	
	Does the project have design consideration to provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control? **(QE-3.2)**	
QE-4	Does the project design the facility using low-emitting materials? **(QE-4)**	
	Has the project specified materials and products with low pollutant emissions, including composite wood products, adhesives, sealants, interior pants and finishes, carpet systems, and furnishings? **(QE-4.1)**	
QE-5	Does the project have a program to protect indoor air quality during construction? **(QE-5)**	

ID #	Performance Objectives and Criteria[3]	Met?
	Does the project have a program to protect indoor air quality during construction by following the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 2007? **(QE-5.1)**	
QE-6	Does the project design and operate the facility for environmental tobacco smoke control? **(QE-6)**	
	Does the project implement a policy and post signage indicating the smoking is prohibited within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes during building occupancy? **(QE-6.1)**	
QE-7	Does the project provide a high level of thermal comfort system controlled by individual occupants or by specific groups in multi-occupant spaces to promote the productivity, comfort and well being of building occupants? **(QE-7)**	
	Does the project provide a comfortable thermal environment that supports the productivity and well being of building occupants? **(QE-7.1)**	
	Does the project owner provide an assessment to building occupants for the thermal comfort over time? **(QE-7.2)**	
Environmental Impacts of Materials Reduction		
MR-1	Does the project specify the recycled content of materials in the design per Section 6002 of the Resource Conservation and Recovery Act? **(MR-1)**	
	For EPA-designated products, do they meet or exceed EPA's recycled content recommendations? **(MR-1.1)** EPA's recycled content product designation and recycled content recommendations are available on EPA's Comprehensive Procurement Guidelines web site at www.epa.gov/cpg	
	For other products, do the materials with recycled content such that the sum of post-consumer recycled content plus ½ of the pre-consumer content constitutes at least 10% of the total value of the materials in the project? **(MR-1.2)**	
MR-2	Does the project specify the biobased content of materials in the design? **(MR-2)**	
	For USDA-designated products, do they meet or exceed USDA's biobased content recommendations? **(MR-2.1)** USDA's biobased product designations and biobased content recommendations are available on USDA's BioPreferred web site at www.usda.gov/biopreferred	
	For other products, does the project use biobased products made from rapidly renewable resources and certified sustainable wood products? **(MR-2.2)**	
MR-3	Does the project specify waste and materials management in its planning, design, and construction activities? **(MR-3)**	
	Have adequate space, equipment, and transport accommodations for recycling been incorporated in the design? **(MR-3.1)**	
	Have local recycling and salvage operations been identified during the project planning phase that could process project-related construction and demolition materials? **(MR-3.2)**	

ID #	Performance Objectives and Criteria[3]	Met?
	During construction, has the project established a goal of at least 50% percent of the non-hazardous construction, demolition and land clearing materials can be recycled or salvaged? **(MR-3.3)**	
MR-4	Does the project specify the use of ozone depleting compounds in the design? **(MR-4)**	
	Does the project eliminate the use of ozone depleting compounds during and after construction where alternative environmental preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life cycle impacts? **(MR-4.1)**	
MR-5	Does the project specify the use of environmental preferable products in the design?	
	Are the products selected that have a lesser or reduced effect on human and the environment over their lifecycle when compared with competing products or services that serve the same purpose? **(MR-5.1)** For recommendations, refer to the Federal Green Construction Guide for Specifies at www.wbdg.org/design/greenspec.php	
MR-6	Does the project promote the increase demand for building materials and products that are extracted and manufactured within the region? **(MR-6)**	
	Does the project support the use of indigenous resources and reducing the environmental impacts resulting from transportation? **(MR-6.1)**	
	Do the materials from the harvest location to the manufacturing location exceed 500 miles? **(MR-6.2)**	
	Is the distance from the manufacturing location to the project location exceeds 500 miles? **(MR-6.3)**	
	During the purchasing stage, has the project established a goal of at least 20% of the actual materials cost excluding labor and equipment? **(MR-6.4)**	