U.S. Department of Energy
Washington, DC

GUIDE

NOT MEASUREMENT SENSITIVE

DOE G 413.3-6B
Approved: 4-5-2020

SUBJECT: HIGH PERFORMANCE SUSTAINABLE BUILDINGS

[This Guide describes acceptable, but not mandatory means for complying with requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with associated rules or directives.]

AVAILABLE ONLINE AT:
www.directives.doe.gov

INITIATED BY:
Office of Project Management

FOREWORD

This Department of Energy (DOE) Guide, for use by all DOE elements, assists with documenting compliance with high performance sustainable building requirements.

This DOE Guide provides acceptable, but not mandatory, means for complying with requirements included in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, current version. This DOE Guide does not impose, but may cite, requirements. Guides neither substitute for requirements nor replace technical standards that implement requirements. Send citations of errors, omissions, ambiguities, and contradictions found in this Guide to PMpolicy@hq.doe.gov.

Contents

1 PURPOSE

1.1 OVERVIEW

This Guide addresses implementing the high performance sustainable building (HPSB) requirements in Department of Energy (DOE) Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*[1] ("the Order"), current version, incorporating the HPSB principles in the design, construction, and commissioning of new, and renovation of existing, DOE buildings, and verifying their incorporation at Critical Decisions (CDs) 0 through 4 and project closeout.

Application of HPSB principles yields benefits including:

1. Reduced total (life-cycle) ownership cost of facilities;
2. Improved energy efficiency and water conservation;
3. Safe, healthy, and productively built environments; and
4. Protection of the natural environment.

1.2 ACQUISITION APPROACHES

The Order references two approaches for acquiring HPSBs.

1. Earning United States Green Building Council (USGBC) Leadership in Energy and Environmental Design[2] (LEED) Building Design and Construction (BD+C) certification at the Gold rating level; and,

2. Achieving all of the 2016 Guiding Principles for Sustainable Federal Buildings[3] (GPs) for new construction referenced by Executive Order (EO) 13834 implementing instructions.[4]

1.3 APPLICABILITY

1. This Guide applies to buildings acquired in accordance with the Order that DOE will either own or lease and that will have the characteristics in the following table:

Criteria	**LEED** BD+C	**GPs**
Total Project Cost	≥ $50M	Any
Individual Building Size	≥ 1,000 GSF	> 5,000 GSF
Real Property Trailers	No	Yes
Human Occupants	Yes	Yes or No
Individual Building Cost	Any	Any

Sources: *DOE Order 413.3B, USGBC Minimum Program Requirements*[5]*, DOE Order 430.1C*

[1] DOE Order 413.3B, https://go.usa.gov/xVW8j
[2] USGBC LEED Green Building Rating System, http://www.usgbc.org/ and http://www.gbci.org/certification
[3] Guiding Principles for Sustainable Federal Buildings, https://go.usa.gov/xpMbp
[4] EO 13834 Implementing Instructions, https://go.usa.gov/xVW8k
[5] USGBC LEED MPR, https://www.usgbc.org/creditst

2. Although structured by the CDs pertinent to capital asset projects with a total project cost of $50 million or more, this Guide also provides useful information for incorporating HPSB principles into minor construction[6] projects acquiring or renovating buildings at DOE sites.

[6] DOE Order 413.3B refers to minor construction projects as "general plant projects (GPPs)".

2 BASIS

2.1 DOE DIRECTIVES

1. DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*[7], along with its contractor requirements document (CRD), requires incorporating the HPSB principles in the project management of capital asset acquisitions involving the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities.

2. DOE Order 430.1C, *Real Property Asset Management*[8], in Section 4(b)(1)(c), requires that the construction or renovation of existing DOE-owned buildings larger than 5,000 gross square feet must meet the White House Council on Environmental Quality (CEQ) Guiding Principles for Sustainable Federal Buildings and Associated Instructions, February 2016, or subsequent revision (GPs).

3. DOE Order 436.1A, *Departmental Sustainability*[9], implements sustainable practices for enhancing Department environmental, energy, and transportation management performance. Section 4(c) requires the preparation of site sustainability plans that typically include a list of planned HPSBs while Sections 4(c)(3) and 5(e)(2) require the utilization of environmental management systems that support HPSBs.

2.2 EXECUTIVE ORDER AND IMPLEMENTING INSTRUCTIONS

1. Executive Order (EO) 13834, Efficient Federal Operations[10], directs the head of each agency to ensure that new construction and major renovations conform to applicable building energy efficiency requirements and sustainable design principles. For new construction and modernization (NC), EO 13834 implementing instructions, in Section III(A)(5), identifies as the basis for HPSBs either the GPs revised in 2016 or one or more third-party building certifications or standards identified by the General Services Administration (GSA). GSA has not published a list of third-party building certifications or standards yet.

2. According to the implementing instructions, CEQ will evaluate agencies based on progress made toward bringing or keeping 15 percent of their buildings 10,000 GSF or larger into compliance with the GPs. CEQ will give bonus credit to agencies that have buildings under 10,000 GSF that comply with the GPs by adding this compliant building area to both the denominator and numerator of the performance metric ratio. EO 13834 revokes and replaces EO 13693 which revoked and replaced EOs 13423 and 13514 referenced in DOE Order 413.3B and DOE Order 436.1A.

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[7] DOE Order 413.3B, https://go.usa.gov/xVW8j
[8] DOE Order 430.1C, Section 4(b)(i)(c), https://go.usa.gov/xV5mN
[9] DOE Order 436.1, https://go.usa.gov/xRwCR
[10] EO 13834, Section 2(e), https://go.usa.gov/xVW8K

2.3 GUIDING PRINCIPLES FOR SUSTAINABLE FEDERAL BUILDINGS

CEQ issued the GPs[11] in two documents: "Determining Compliance with the Guiding Principles for Sustainable Federal Buildings" (GP Compliance Document), which outlines evaluation criteria for each of the GPs and the "Guiding Principles for Sustainable Federal Buildings and Associated Instructions," which provides instructions, guidance and recommended practices. Where the latter contains generalities, the former offers specifics.

2.4 OFFICE OF MANAGEMENT AND BUDGET CIRCULAR A-11 GUIDANCE

OMB Circular A-11[12] addresses, among other topics, the planning, budgeting, and acquisition of capital assets. The Capital Programming Guide, a supplement to the Circular, in Section (I)(5(1), requires integrated project teams (IPTs) to determine the extent to which asset acquisition or renovation requirements have incorporated sustainable design principles.

2.5 ACQUISITION REGULATIONS AND GUIDANCE

1. The Federal Acquisition Regulation (FAR) in 48 CFR §7.103(p)(3)[13] directs heads of agencies to ensure their planners comply with the GPs in designing, constructing, or renovating federal buildings.

2. The Department of Energy Acquisition Regulation[14] (DEAR) supplement the FAR, which codifies uniform policies for acquisition of supplies and services by executive agencies, and contains clauses for inclusion in contracts. Several clauses support HPSB principles in the acquisition of capital assets. For the sustainable acquisition program, see DEAR 952.223-78 and DEAR 970.5223-7. For integration of environment, safety, and health into work planning and execution, see DEAR 952.223-71 and DEAR 970.5223-1.

3. The Department of Energy Acquisition Guide, Chapter 23.1[15], addresses sustainability especially from the perspective of purchasing sustainable supplies, materials, and equipment.

[11] FEMP, Resources on the Guiding Principles for Sustainable Federal Buildings, https://go.usa.gov/xVW8R and https://go.usa.gov/xVW85
[12] OMB, Circular A-11, Supplement to Part 7—*Capital Programming Guide*, https://go.usa.gov/xVW8E
[13] FAR, 48 CFR §7.103, https://go.usa.gov/xV5y3
[14] DEAR, 48 CFR §952, https://go.usa.gov/xV5yB, and 48 CFR §970, https://go.usa.gov/xV5yk
[15] DOE Acquisition Guide, Chapter 23.1, Sustainable Acquisition Policy, https://go.usa.gov/xVW82

3 BACKGROUND

3.1 OTHER RESOURCES

1. This Guide does not fully address all of the other governing statutes, rules, and other guidance related to sustainability at Federal sites, such as the Energy Policy Act of 2005[16] (EPAct) and the Energy Independence and Security Act of 2007[17] (EISA). Note that the GPs do not incorporate EISA Section 523 which requires agencies to install solar hot water heaters when lifecycle cost effective.[18,19]

2. Regulation requires newly constructed buildings to comply with the applicable version of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1[20], or if low-rise residential, the International Energy Conservation Code (IECC),[21] at a level 30 percent more energy efficient than the applicable version of ASHRAE 90.1 or the IECC if life-cycle cost effective or, if not life-cycle cost effective, at the maximum percentage more energy efficient than the applicable version of ASHRAE 90.1 or the IECC to achieve life-cycle cost effectiveness.[22]

3. The Office of Project Management (PM) has published a glossary of DOE project management terms.[23] A building meeting the GPs also conforms to the definition of a high performance green building.[24] However, a building that conforms to the definition of a high performance green building has not necessarily conformed to federal statutes related to sustainability, met the GPs, or earned LEED Gold certification.

3.2 GUIDING PRINCIPLES

1. The GPs originate in the January 24, 2006 Memorandum of Understanding on *Federal Leadership in High Performance and Sustainable Buildings,*[25] in which signatory agencies committed to follow a set of principles in the siting, design, construction and commissioning of federal buildings.

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[16] EPAct, Pub. L. No. 109-58, https://go.usa.gov/xVW8Z
[17] EISA, Pub. L. No. 110-140, https://go.usa.gov/xVW8D
[18] Solar Hot Water Heaters, 42 USC §6834(a)(3)(a)(iii), https://go.usa.gov/xp7jV
[19] FEMP, Solar Hot Water Heater Guidance, https://go.usa.gov/xVW8n and https://go.usa.gov/xVW8Q
[20] See 10 CFR §433.100, https://go.usa.gov/xV5ZN, which specifies the applicable version of ASHRAE 90.1 based on when design began. Determine energy consumption levels using the performance rating method found in ASHRAE 90.1, Appendix G.
[21] See 10 CFR §435.4, https://go.usa.gov/xpHvE, which specifies the applicable version of the International Energy Conservation Code based on when design began.
[22] See 10 CFR §436.19 *et. seq.* for the methodology for determining life-cycle cost effectiveness.
[23] DOE Acquisition and Project Management Glossary of Terms Handbook, https://go.usa.gov/xRwxb
[24] Per DOE and GSA interpretation of the HPGB Definition, 42 USC §17061(13), https://go.usa.gov/xVfjg
[25] Memorandum of Understanding, http://www.wbdg.org/references/mou.php

2. The GPs as revised in 2016 include:

   a. Employ integrated design principles;
   b. Optimize energy performance;
   c. Protect and conserve water;
   d. Enhance indoor environmental quality;
   e. Reduce environmental impact of materials; and,
   f. Assess and consider climate change risks.

3. Attachment 1 lists by GP element resources useful to projects.

3.3 LEED CERTIFICATION

1. The USGBC created the LEED rating system as an independent commercial green building certification program. The system provides guidelines for, and third-party verification of, features intended to improve environmental performance in functional areas including site selection and access, site development, energy and water consumption, materials selection, and indoor environmental quality. The Green Business Certification Inc. (GBCI) administers LEED including LEED Online, performs third-party technical reviews, and verifies LEED-registered projects.[26] USGBC charges fees.[27]

2. The LEED rating system offers multiple certification tracks applicable to different project or building types. The Order in its CRD specifies achievement of LEED certification at the Gold rating level but does not prescribe a particular certification track. Based on the number of points achieved, a project earns one of four LEED rating levels: Certified, Silver, Gold or Platinum. Due to its ubiquity in the commercial sector, construction contractors will likely have, or at least access to, expertise in LEED.

3. Each LEED rating system has minimum program requirements (MPRs) and credit category prerequisites. Buildings that cannot satisfy one or more MPRs and credit category prerequisites for a LEED rating system may not earn certification under that LEED rating system. Some credit category pre-requisites introduce scope beneficial only when a building will have human occupants.

3.4 EQUIVALENCE AND TRAINING

1. CEQ has not identified any green building certifications as equivalent to the GPs. Instead, DOE has determined that a LEED Gold rating level equates to compliance with the GPs under the following circumstances:

[26] USGBC LEED Green Building Rating System, http://www.usgbc.org/ and http://www.gbci.org/certification
[27] USGBC LEED Fee Schedule, https://www.usgbc.org/cert-guide/fees

a. Any contracts supporting constructing a new, or renovating an existing, building invoke 48 CFR § 970.5223-7, Alternate I for Construction Contracts and Subcontracts; and,
b. The LEED credits earned satisfy the GPs per 10 CFR § 433.300(c).

2. GSA has determined[28] that prerequisite and point criteria for LEED BD+C Version 4.0 do not incorporate the following component requirements of the GPs:

   a. Radon detection; and,
   b. Waste diversion for occupants.

3. GSA has further determined[29] that buildings may earn LEED BD+C Version 4.0 certification without incorporating the following component requirements of the GPs:

   a. Indoor air quality plans;
   b. Moisture control;
   c. Integrated pest management;
   d. Actual energy use reduction;
   e. ENERGY STAR products;
   f. Energy efficiency benchmarking;
   g. Procuring materials with recycled content; and,
   h. Procuring materials with biobased content.

4. The Federal Energy Management Program (FEMP) provides training on the GPs[30] including using spreadsheets to track compliance.[31] USGBC offers training on LEED.[32] Both offer reference materials. GSA and FEMP have also published other HPSB resources.

[28] Per 42 USC §17092(h), GSA reviews high-performance building certification systems quinquennially. GSA, HPB Certification System Review, Table 3-1, https://go.usa.gov/xVWN3
[29] GSA, HPB Certification System Review, Table 3-1, https://go.usa.gov/xVWN3
[30] FEMP, Training on the 2016 Guiding Principles, https://go.usa.gov/xVW8P
[31] FEMP GP compliance tracking spreadsheets, https://go.usa.gov/xp7RM
[32] USGBC, LEED Training, https://new.usgbc.org/education

4 ROLES AND RESPONSIBILITIES

4.1 CHIEF EXECUTIVE FOR PROJECT MANAGEMENT

Reviews CD documents including plans to incorporate the GPs or design for LEED Gold certification on projects with a total project cost equal to or greater than $750 million.

4.2 PROJECT MANAGEMENT EXECUTIVE

1. Adjudicates LEED Gold certification waiver requests.

2. Reviews CD documents including plans to incorporate the GPs or design for LEED Gold certification on projects with a total project cost equal to or greater than $100 million.

4.3 PROGRAM SECRETARIAL OFFICER

1. Sets sustainability goals for capital asset projects and ensures their incorporation in the mission need statement.

2. Devises a process for requesting LEED Gold certification waivers.

3. Reviews CD documents including plans to incorporate the GPs or design for LEED Gold certification on projects with a total project cost equal to or greater than $50 million.

4. Provides first tier interpretations of the GPs.

4.4 FEDERAL PROJECT DIRECTOR

1. Gains a familiarity with the GPs and LEED certification requirements.

2. Staffs the IPT with design and construction management professionals proficient in building commissioning, the GPs, and LEED certification requirements.

3. Arranges for the appointment of a commissioning agent.

4. Includes sustainability requirements in the scope to ensure compliance with DOE Order 413.3B. Verifies incorporation of GPs in design and construction documents. Furnishes documentation addressing sustainability to project review teams.

5. Arranges for the preparation and submission of LEED Gold certification waiver requests when necessary.

6. Documents plans associated with HPSBs in the DOE Sustainability Dashboard.[33] Documents GPs met in FEMP GP checklists, LEED credits earned in the GBCI

[33] DOE Sustainability Dashboard, https://sustainabilitydashboard.doe.gov/.

system "LEED Online," and applies for LEED certification. Documents completed HPSBs in the Facilities Information Management System (FIMS).[34]

4.5 DIRECTOR OF THE OFFICE OF ASSET MANAGEMENT

1. Issues guidance related to HPSBs, complying with GPs, updating site sustainability plans, and documenting plans to construct or renovate a HPSB.

2. Provides second tier interpretations of the GPs.

3. Reports to OMB annually the inventory of buildings complying with the GPs either outright or through equivalence.

4.6 PROJECT ANALYST IN OFFICE OF PROJECT MANAGEMENT

1. Includes lines of inquiry related to HPSB in reviews as appropriate.

2. Compares scope baselined to scope delivered to confirm that the project delivered HPSB-related requirements.

[34] Facilities Information Management System (FIMS), https://fims.doe.gov/.

5 SCHEDULE

The below schedule arranges deliverables or actions required by the Order and recommended by this Guide according to the timing of their completion, either prior to or following a CD.

PRE		CRITICAL DECISION	POST	
Action	Basis		Action	Basis
• Address meeting the GPs in Mission Need Statement and Program Requirements Document.	Guide	0	• Ensure IPT and support contractors have adequate expertise.	Guide
• Address meeting the GPs and earning LEED certification in the conceptual design report, acquisition strategy, analysis of alternatives, and project execution plan.	Order	1	• Ensure design contractors have adequate expertise. • Begin commissioning plan. • Track work towards complying with the GPs. • Submit LEED waivers.	Guide
• Address meeting the GPs and earning LEED certification in the preliminary design and design review.	Order	2	• Document which parts of specific GPs, if any, do not apply to each building. • Ensure the contractor will provide adequate documentation.	Guide
• Address meeting the GPs in the final design and External Independent Review (or equivalent). • Obtain an initial LEED credit determination • Confirm the GPs inclusion in commissioning plans.	Order Guide Guide	3	• Document compliance with the GPs and LEED credits. • Profile the buildings acquired or renovated in ENERGY STAR Portfolio Manager	Guide
• Verify compliance with the GPs. • Verify the completion of commissioning.	Guide	4	• Confirm completeness of GP compliance records. • Obtain a final LEED credit determination • Confirm records in FIMS address compliance with the GPs.	Guide

6 DELIVERABLES

6.1 INITIATION PHASE

Mission Need Statement and Program Requirements Documents	
Source: DOE Order 413.3B, Appendix A, Table 2.0	Applies to:
• Approve a Mission Need Statement Document with recommendation from PM for projects with a TPC ≥ $100M. • For NNSA only, prepare a Program Requirements Document that defines the ultimate goals which the project must satisfy.	• Pre-CD-0

1. The Mission Need Statement documents the gap between current and needed capabilities. Include in it a brief discussion on how the project intends to incorporate HPSB principles in its plans for constructing new or renovating facilities.

2. Address in the Program Requirements Document, required for NNSA projects per the Order, achieving a minimum of a LEED Gold rating and complying with the GPs.

3. Identify a representative of a site or field sustainability or energy management program office familiar with the current version of LEED and the GPs during the formation of the IPT. This representative will provide first tier interpretations of the GPs.

6.2 DEFINITION PHASE

Conceptual Design Report, Acquisition Strategy, and Project Execution Plan	
Source: DOE Order 413.3B, Appendix A, Table 2.1	Applies to:
• Document Guiding Principles for Federal Leadership in High Performance and Sustainable Building provisions . . . and/or other sustainability considerations planned in the Conceptual Design Report, Acquisition Strategy, and/or [Project Execution Plan (PEP)], as appropriate.	• Pre-CD-1

6.2.1 Planning Documents

1. Apply integrated design principles as early as possible and throughout the life of the project to both establish expectations up front and provide the framework for tracking progress throughout the project.

2. Benchmark the theoretical energy and water demands of each building proposed for construction or renovation under each alternative as part of determining the life-cycle costs for each alternative.

3. Include in the conceptual design report LEED and GP related requirements in the code of record. Post CD-1, identify the target LEED certification level.

4. Include in the acquisition strategy requirements that contractors or execution agents will need to meet, including LEED certification levels.

6.2.2 Integrated Project Team

1. Ensure the IPT has:

   a. Federal or contractor members with HPSB experience, including a LEED accredited professional[35], who will document accomplishment of LEED credits and GP compliance; and,

   b. A representative from the commissioning agent that ideally will remain under contract to support the project through occupancy.

2. Select design firms with experience in sustainable buildings.

3. Use scorecards and checklists to keep the IPT informed of planned and completed actions supporting achieving LEED credits or GP compliance.

6.2.3 LEED Registration

Register projects with USGBC as soon as possible.[36] Note registration incurs a fee. Although either federal or contractor personnel may register a project, if DOE plans to own the building, a federal employee signs the registration. Begin each registered building name with "US DOE," followed by the two letter program abbreviation of the project owner, the site abbreviation, and then the planned property name appearing in the FIMS Anticipated Asset Information Module.[37] Once registered with USGBC, the building may comply with the current or a future version of LEED, whichever seems most advantageous to the project. After registration the project may:

1. Access reference materials that will aid in planning;
2. Access credit-specific templates;
3. Store project documents; and,
4. Assign roles to members of the integrated project team.

6.2.4 Identifying Energy Goals

1. Complying with the GPs for new construction requires an energy efficiency at least 30 percent better than the current ASHRAE 90.1 standard.[38]

2. The current version of the International Green Construction Code may present options for energy efficiency ASHRAE 90.1 does not address.[39]

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[35] USGBC LEED Accredited Professionals, https://www.usgbc.org/people
[36] USGBC LEED Project Registration Agreement and Form, https://www.usgbc.org/resources/leed-project-registration-agreement and https://www.leedonline.com/ or https://arcskoru.com/
[37] DOE Order 430.1C, Section 4(b)(1)(b), https://go.usa.gov/xV5mN
[38] Guiding Principles for Sustainable Federal Buildings, https://go.usa.gov/xpMbp.
[39] International Green Construction Code, https://www.iccsafe.org/products-and-services/i-codes/2018-i-codes/igcc/

3. The earlier energy efficiency planning begins, the more likely the project will maximize its LEED "Optimize Energy Performance" credit points.

4. Under the LEED credit "Optimize Energy Performance," pursue option 1, "Energy Performance Compliance." Projects complying with regulation[40] already model the estimated energy consumption of their buildings except for low-rise residential buildings.

6.2.5 Commissioning

Post CD-1, develop a commissioning plan with your commissioning agent. Address at a high level in the Preliminary Project Execution Plan (PPEP) startup and commissioning processes. Include in the Owner's Project Requirements (OPR) and Basis of Design (BOD) documents commissioning requirements. Have the commissioning agent review both the OPR and the BOD.

6.2.6 LEED and GP Site Credits

Some GP elements concern site-wide policies or activities. Similarly, LEED awards some credits based on sustainable features or practices external to the building(s) seeking certification. Sites may leverage related documentation for multiple buildings seeking compliance with the GPs or LEED certification. Involve site sustainability contacts in planning discussions as they will provide supporting documentation.

6.2.7 LEED and GP documentation

Despite the similarities between the GP and LEED credit categories, specific requirements and documentation methods differ. Achieving a LEED Gold rating does not equate to meeting all of the GPs nor does achieving 100 percent of the GPs guarantee receipt of a LEED Gold rating. Track LEED credits and GP compliance separately; however, where requirements coincide, the IPT may use LEED credit documentation to document compliance with the GPs.

6.2.8 LEED Minimum Requirements

Post CD-1, with an alternative selected, the project may determine which buildings it will acquire or renovate will meet the USGBC-defined MPR and prerequisites for certification. The project may select any LEED rating system to follow for each building in the scope.

6.2.9 LEED Waiver

Where the IPT suspects that a building while meeting the LEED MPR will not satisfy LEED prerequisites or earn enough credits for a LEED Gold rating, the federal project director (FPD) requests a waiver from the Project Management Executive (PME). Section 7.7.1 describes the waiver process. Section 7.7.2 addresses instances where a building does not meet LEED MPR.

[40] See 10 CFR §433.101, https://go.usa.gov/xV5ZN.

6.2.10 Communication with the Designers

Include in the OPR and BOD the requirements to (1) achieve LEED Gold certification absent a waiver the terms of which may still require earning LEED certification at a target certification level and (2) comply with the GPs.

6.2.11 Conflicting Requirements

If a federal regulation seems stricter than the GPs, LEED credit requirement, or industry standard, follow the federal regulation. The contracting officer, in consultation with the FPD, decides what constitutes stricter.

6.2.12 Scorecards and Checklists

1. Scorecards and checklists facilitate tracking the project's sustainable features through design, construction, and transition to operations.

2. Based on the recommended alternative, and if seeking LEED certification, use a scorecard to identify LEED credits and points the project intends to earn.

3. If seeking compliance with the GPs outright to modernize an existing building, identify the preferred energy efficiency strategy in a checklist.

4. As the project progresses, use LEED scorecards to document completed and remaining credits for LEED certification and GP checklists to document actions planned and taken to achieve compliance. Find example scorecards and checklists in Attachment 2.

6.3 EXECUTION PHASE, PRIOR TO CRITICAL DECISION-2

Preliminary Design and Design Review	
Source: DOE Order 413.3B, Appendix A, Table 2.2	Applies to:
• Incorporate the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings . . . and/or other sustainability considerations into the preliminary design and design review.	• Pre-CD-2

6.3.1 Assigning Responsibility

1. The FPD will address requirements associated with attaining a LEED Gold rating and compliance with the GP in the PDR, OPR, and contract documents including the BOD.
2. The FPD will identify one or more IPT members to bear the responsibility for each LEED credit or GP element and empower them to work closely with the appropriate members of the design team.

6.3.2 Routine Progress Meetings

Hold regular HPSB team meetings in order to review progress made and identify potential challenges to complying with a GP element or achieving LEED credits early. Continue meetings through the start of operations.

6.3.3 Preliminary Design

1. Verify 60 percent design incorporates all sustainable features except for final energy and water savings projections, which 90 percent design documents will include.

2. Identify achievable sustainable building features in the preliminary design report. Update the energy projections and model. Analyze the lifecycle cost effectiveness of installing solar hot water systems to meet at least 30 percent of the design hot water demand, per EISA Section 523.[41]

6.3.4 Use of "Not Applicable" for GPs

Identify GP NC elements or sub-elements deemed "not applicable" to each applicable building per Section 7.7.3. Justify each such determination in the GP checklist.

6.3.5 LEED Credit and GP Element Documentation

Update documentation so that it identifies the LEED level deemed achievable to include a LEED scorecard and GP checklist identifying the sustainable features that will contribute to achieving the certification. Much like USGBC provides a website for documenting compliance with credit requirements, FEMP provides checklists for the GPs.[42] Identify risks to planned sustainable features and develop risk response strategies. Update scorecards and checklists to reflect the validated sustainable features of the preliminary project design and justify decisions to deem a GP element or sub-element not applicable.

6.3.6 LEED Waiver

Where the IPT suspects that a building while meeting the LEED MPR will not satisfy LEED prerequisites or earn enough credits for a LEED Gold rating, the FPD requests a waiver from the PME if it did not do so prior to CD-1. See Section 7.7.1 for a description of a waiver process.

6.3.7 Project Reviews

Include a line of inquiry related to the project's sustainable features in project reviews.

6.3.8 USGBC Split Review

At the project's request, GBCI completes a review of LEED credit documentation following preliminary design and a second and final review prior to project closeout. Negative determinations may result in the IPT revising documentation or pursuing additional credits

[41] FEMP, Solar Hot Water Heater Guidance, https://go.usa.gov/xVW8n and https://go.usa.gov/xVW8Q
[42] FEMP, Resources on the GPs, https://go.usa.gov/xVW85

documentable during either final design or construction. Note that USGBC assesses fees for each review conducted by GBCI.

6.4 EXECUTION PHASE, PRIOR TO CRITICAL DECISION-3

Final Design and External Independent Review	
Source: DOE Order 413.3B, Appendix A, Table 2.3	Applies to:
• Incorporate the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings . . . and/or other sustainability considerations into the Final Design and the EIR.	• Pre-CD-3

6.4.1 Final Design

Ensure that the final design and the solicitation for construction incorporate the sustainable features deemed necessary to comply with the GPs and attain LEED Gold certification in the absence of an approved waiver. Confirm specifications address acquiring environmentally preferable products for construction and other materials, energy efficiency, and recycling of construction and demolition waste. Select contractors with experience constructing sustainable buildings.

6.4.2 Scorecards and Checklists

Update scorecards and checklists to reflect any changes made during the final design process that might impact the project's ability to comply with the GPs or achieve LEED certification. Reflect the final energy and water savings projections in updated scorecards and checklists.

6.4.3 Project Reviews

Include a line of inquiry related to the project's sustainable features in project reviews.

6.4.4 LEED Credit and GP Element Documentation

Maintain documentation of LEED credits sought and attained along with GP elements satisfied.

6.4.5 Commissioning

Begin coordinating commissioning agents, subcontractors, site contractors, federal personnel, and federal support contractors to facilitate cooperation during testing, startup, commissioning, and transition to operations.

6.5 EXECUTION PHASE, PRIOR TO CRITICAL DECISION-4

Construction and Commissioning	
Source: DOE Order 413.3B, Attachment 1, 15	Applies to:
• The Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings . . . must be applied to the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities.	• Pre-CD-4

6.5.1 LEED Credit and GP Element Documentation

Earning certain LEED credits and satisfying certain GP elements depends on collecting each month information on construction activity pollution prevention, indoor air quality management, sustainable building materials, and construction and demolition waste recycling.

6.5.2 Commissioning

Confirm that the project's commissioning plan incorporates the sustainable features of each building. The commissioning agent will verify correct installation and proper operation of equipment and systems followed by checking that personnel have received sufficient training in their operations and maintenance and that management contracts include each commissioned building.

6.5.3 Benchmarking

Add each acquired building to, or update existing building records in, the Environmental Protection Agency (EPA) ENERGY STAR Portfolio Manager to facilitate tracking of energy and water consumption in addition to greenhouse gas emissions.

6.6 PROJECT CLOSEOUT PHASE

Documentation of Compliance with GPs and LEED Certification	
Source: DOE Order 413.3B, Appendix A, Table 2.5	Applies to:
• Complete and document achievement of Facility Sustainment goals (e.g., LEED Gold, LEED Silver, etc.), as applicable, via an independent third-party entity within one year of facility occupancy.	• Post CD-4

6.6.1 Third-Party Entity

1. GBCI serves as the third-party review entity for LEED certification.

2. Programs may determine compliance with the GPs themselves, through the project commissioning agent, or through an independent service provider external to the project that charges fees such as GBCI[43] or Green Building Initiative.[44]

6.6.2 LEED Certification

Obtain a final LEED credit determination from GBCI by requesting a construction review. Convene a formal ceremony for, and issue a press release upon, mounting the LEED certification plaque. Invite key stakeholders such as the PME to the ceremony. Provide to the site FIMS coordinator the LEED rating earned on each building acquired or renovated.

[43] GBCI GP compliance determination, https://guidingprinciples.gbci.org/
[44] GBI GP compliance determination, https://thegbi.org/guiding-principles-compliance-certification/overview/

6.6.3 GP Documentation

Document compliance with the GPs in a final version of the GP checklist or in the project closeout report in accordance with the procedures set by the Program Secretarial Officer (PSO) of the Project Owner. Provide to the site FIMS coordinator documentation, such as a completed GP checklist, of the percentage of the GP NC achieved on each building acquired.

6.6.4 GPs for Existing Buildings

If a site wishes to document a building's compliance with the GPs subsequent to a FIMS annual snapshot recording the building as either "evaluated and does not meet the guidelines" or "not yet evaluated", the site would evaluate the building's compliance with the GPs for Existing Buildings.[45]

6.7 TAILORING AND EXCEPTIONS

LEED Gold Waiver	
Source: DOE Order 413.3B, Attachment 1, 16	Applies to:
• At a minimum, all new construction and major building renovations must meet U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold certification absent an approved waiver from the PME.	• Pre-CD-2

6.7.1 LEED Gold Waiver Procedures

1. Each PSO creates a waiver process for planned construction or renovation of buildings that meet the LEED MPR but will not earn a LEED rating of Gold or Platinum.

2. The PME adjudicates the waiver request. Waiver request adjudication may occur prior to the approval of CD-1 but may not occur after CD-2.

3. The PME may approve a blanket waiver applicable to specific usages or other objective attributes.

4. To support the waiver request, use a LEED scorecard to indicate the achievable sustainability criteria and justify sustainability criteria deemed unachievable. Reasons to request a waiver may include:

    a. A building meets the LEED MPR[46] but will not meet LEED prerequisites;

    b. A building meets the LEED MPR, will meet LEED prerequisites, but cannot achieve sufficient credits for a LEED Gold rating, and does not plan to obtain LEED Certification.

[45] FEMP, Resources on the GPs, https://go.usa.gov/xVW85
[46] USGBC LEED MPR, https://www.usgbc.org/credits

c. A building meets the LEED MPR and prerequisites, cannot achieve sufficient credits for a LEED Gold rating, but does plan to obtain a LEED Certification.

6.7.2 LEED Non-Applicability Documentation

1. Buildings that do not meet LEED MPR, or buildings meeting the LEED MPR but will have no human occupants, may forgo submitting a waiver request by documenting these findings in either a:

   a. Preliminary Design Report or the PEP; or,

   b. Memorandum to file from the PSO responsible for sustainability prepared in consultation with the IPT.

2. LEED non-applicable buildings have the potential to still comply with the GPs.

6.7.3 Non-Applicable GP Element Documentation

1. Document using a checklist any GP elements or sub-elements deemed "not applicable" to the building. A project may not deem all elements of a single GP "not applicable" but still claim compliance with the GPs.

2. The FPD may make a "not applicable" determination where the building's inherent function, mission, safety or designation prevents compliance with a specific GP element, or sub-element.

3. The PSO responsible for sustainability or, when no such office exists, the Office of Asset Management reviews the project's "not applicable" determinations prior to CD-2. Retain documentation of the determination with project and real property asset records.

6.8 SUMMARY SYSTEM DIAGRAM

Figure 1 depicts the inputs that inform the planning, design, and acquisition of HPSBs, tools and techniques used to track LEED points earned and GP elements met, and project management deliverables, i.e., outputs, that provide evidence of accomplishing the above.

Inputs	Tools & Techniques	Outputs
1. Mission Need Statement 2. Program Requirements Document 3. EO 13834 Instructions 4. GPs 5. LEED Rating System 6. Commissioning plan	1. GP Checklists 2. LEED Scorecards 3. Documentation templates 4. LEED Online 5. ENERGY STAR Portfolio Manager	1. Commissioning report 2. GP Compliance Documentation 3. LEED Credits 4. LEED Certification 5. LEED Gold Waiver 6. Benchmarked energy and water consumption

Figure 1: Inputs, Tools & Techniques and Outputs for HPSBs

7 ACRONYMS AND ABBREVIATIONS

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BD+C	Building Design and Construction
BOD	Basis of Design (*LEED term*)
CD	Critical Decision
CEQ	White House Council on Environmental Quality
CFR	Code of Federal Regulations
DEAR	Department of Energy Acquisition Regulation
DOE	Department of Energy
EIR	External Independent Review
EISA	Energy Independence and Security Act
EO	Executive Order
EPA	Environmental Protection Agency
EPAct	Energy Policy Act
FAR	Federal Acquisition Regulation
FEMP	Federal Energy Management Program
FIMS	Facility Information Management System
FPD	federal project director
IECC	International Energy Conservation Code
IPT	integrated project team
GBCI	Green Business Certification Incorporated
GPs	2016 Guiding Principles for Sustainable Federal Buildings
GSA	General Services Administration
GSF	gross square feet
HPSB	High Performance Sustainable Building
LEED	Leadership in Energy and Environmental Design®
M	million
MPR	Minimum Program Requirements
NC	new construction and modernization
OMB	Office of Management and Budget
OPR	Owner's Project Requirements (*LEED term*)
PM	The Office of Project Management
PME	Project Management Executive
PSO	program secretarial officer
USACE	United States Army Corps of Engineers
USGBC	United States Green Building Council
WBDG	Whole Building Design Guide

8 SOURCES CITED

1. Code of Federal Regulations, 10 CFR §433, https://go.usa.gov/xV5ZN.

2. Code of Federal Regulations, 48 CFR §7.103, https://go.usa.gov/xV5y3.

3. DOE Acquisition Guide, Chapter 23.1, Sustainable Acquisition Policy, August 2017, https://go.usa.gov/xVW82.

4. DOE Acquisition Regulation, 48 CFR §952, https://go.usa.gov/xV5yB, and 48 CFR §970, https://go.usa.gov/xV5yk.

5. DOE Acquisition and Project Management Glossary of Terms Handbook, https://go.usa.gov/xRwxb.

6. DOE Interpretation of High Performance Sustainable Building Guiding Principles, PowerPedia page, https://go.usa.gov/xVW8b.

7. DOE Order 413.3B, Chg. 5, *Program and Project Management for the Acquisition of Capital Assets*, https://go.usa.gov/xVW8j.

8. DOE Order 430.1C, *Real Property Asset Management*, https://go.usa.gov/xV5mN

9. DOE Order 436.1, *Departmental Sustainability*, https://go.usa.gov/xRwCR.

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11. Energy Policy Act (EPAct) of 2005, Pub. L. No. 109-58, https://go.usa.gov/xVW8Z.

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24. Office of Management and Budget, Circular A-11, Supplement to Part 7—*Capital Programming Guide*, https://go.usa.gov/xVW8E.

25. United States Code, Solar Hot Water Heaters, https://go.usa.gov/xp7jV.

26. US Green Building Council, LEED Accredited Professionals Listing, https://www.usgbc.org/people.

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31. US Green Building Council, LEED Project Registration Agreement and Form, https://www.usgbc.org/resources/leed-project-registration-agreement and https://www.leedonline.com/ or https://arcskoru.com/.

32. US Green Building Council, LEED Training, https://new.usgbc.org/education.

ATTACHMENT 1: RESOURCES BY GUIDING PRINCIPLE ELEMENT

1. Employ integrated design principles

    a. FEMP Training, https://go.usa.gov/xVWXj
    b. FEMP Commissioning, https://go.usa.gov/xVWXB
    c. GSA Commissioning Plan Template, https://go.usa.gov/xvqfA
    d. Building Commissioning Association, http://www.bcxa.org/

2. Optimize energy performance

    a. Building modeling software, http://www.buildingenergysoftwaretools.com/
    b. Renewable energy, https://go.usa.gov/xpHH8
    c. Life-cycle cost analysis, https://go.usa.gov/xpHH9
    d. Metering, https://go.usa.gov/xVWX8

3. Protect and conserve water

    a. Water Products, https://go.usa.gov/xVWXn
    b. Conserve Water:

        i. Water Planning, https://go.usa.gov/xVWX5
        ii. Water Management, https://go.usa.gov/xVWXN

    c. Single Pass Cooling, https://go.usa.gov/xVWXU
    d. Cooling Tower Management, https://go.usa.gov/xVWXP
    e. Stormwater, https://go.usa.gov/xVWXE

4. Enhance indoor environmental quality

    a. ENERGY STAR, https://go.usa.gov/xVWXy
    b. Daylighting, http://www.wbdg.org/resources/daylighting.php
    c. Low Emitting Products, https://www.wbdg.org/references/mou_lem.php
    d. Integrated Pest Management, https://go.usa.gov/xp7R4
    e. Indoor Air Quality, https://www.smacna.org/store/indoor-environmental-air-quality

5. Reduce environmental impact of materials

    a. Purchasing:

        i. GSA Sustainability Tool, https://sftool.gov/
        ii. USDA Biopreferred, http://www.biopreferred.gov
        iii. Environmental Protection Agency, www.epa.gov/epp/
        iv. WBDG, Green Specifications, www.wbdg.org/design/greenspec.php

    b. Standards and Labels, http://scorecard.goodguide.com/chemical-groups/one-list.tcl?short_list_name=ods and https://www.epa.gov/greenerproducts

6. Assess and consider climate change risk

    a. Federal Emergency Management Agency, Floodplain Determination, https://msc.fema.gov/portal/search
    b. EPA, Ozone Depleting Substances, https://go.usa.gov/xVWXd
    c. EPA, Alternatives, https://go.usa.gov/xVWXv

ATTACHMENT 2: EXAMPLE LEED SCORECARDS AND GP CHECKLISTS

1. LEED Scorecard example (http://bit.ly/2fQPKZG) – Link provides a legible version of the image below.

LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Project Name:
Date:

Y	?	N			
			Credit	Integrative Process	1

Y	?	N		Location and Transportation	16
			Credit	LEED for Neighborhood Development Location	16
			Credit	Sensitive Land Protection	1
			Credit	High Priority Site	2
			Credit	Surrounding Density and Diverse Uses	5
			Credit	Access to Quality Transit	5
			Credit	Bicycle Facilities	1
			Credit	Reduced Parking Footprint	1
			Credit	Green Vehicles	1

Y	?	N		Sustainable Sites	10
Y			Prereq	Construction Activity Pollution Prevention	Required
			Credit	Site Assessment	1
			Credit	Site Development - Protect or Restore Habitat	2
			Credit	Open Space	1
			Credit	Rainwater Management	3
			Credit	Heat Island Reduction	2
			Credit	Light Pollution Reduction	1

Y	?	N		Water Efficiency	11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
			Credit	Outdoor Water Use Reduction	2
			Credit	Indoor Water Use Reduction	6
			Credit	Cooling Tower Water Use	2
			Credit	Water Metering	1

Y	?	N		Energy and Atmosphere	33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
			Credit	Enhanced Commissioning	6
			Credit	Optimize Energy Performance	18
			Credit	Advanced Energy Metering	1
			Credit	Demand Response	2
			Credit	Renewable Energy Production	3
			Credit	Enhanced Refrigerant Management	1
			Credit	Green Power and Carbon Offsets	2

Y	?	N		Materials and Resources	13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
			Credit	Building Life-Cycle Impact Reduction	5
			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
			Credit	Construction and Demolition Waste Management	2

Y	?	N		Indoor Environmental Quality	16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
			Credit	Enhanced Indoor Air Quality Strategies	2
			Credit	Low-Emitting Materials	3
			Credit	Construction Indoor Air Quality Management Plan	1
			Credit	Indoor Air Quality Assessment	2
			Credit	Thermal Comfort	1
			Credit	Interior Lighting	2
			Credit	Daylight	3
			Credit	Quality Views	1
			Credit	Acoustic Performance	1

Y	?	N		Innovation	6
			Credit	Innovation	5
			Credit	LEED Accredited Professional	1

Y	?	N		Regional Priority	4
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1

0	0	0	TOTALS	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

2. GP Checklist (https://go.usa.gov/xRhk8) – Link provides a legible version of the image below.

Guiding Principle	Required or Additional	Metric	Suggested Evidence of Compliance (may need one or more)	Compliance (dropdown box) Yes/No/In-Process/Not Applicable	Notes/Comments
I. Employ Integrated Assessment, Operation, and Management Principles					
Integrated Assessment, Operation, and Management	RQD	1. Consider the environmental impact of siting decisions and use an integrated project team to: establish energy and other environmental performance goals in the design process; follow sustainable landscape design principles; evaluate electric vehicle charging needs; consider design choices that improve environmental performance, support health and wellness of building occupants and consider climate risks including wildfire; and consider all stages of the building's life cycle.	☐ Integrated Team roster or equivalent ☐ Baseline Guiding Principles assessment ☐ Site assessment ☐ Sustainable design charrette ☐ Other	**Yes**	[Sample] Project uses Integrated Project team; Energy goals and environmental goals established via LEED Gold; Sustainable design charrette was held on May 16, 2016 with the project team. Meeting results are available.
Commissioning	RQD	2. Commission and recommission at least every 4 years to optimize building performance using commissioning agents who are independent of the design and construction or operating team. Commissioning should be consistent with the Energy Independence and Security Act (EISA) section 432[1] and Federal Energy Management Program (FEMP) commissioning guidance.[2]	☐ Commissioning report ☐ Other	**Yes**	
II. Optimize Energy Performance					
Energy Efficiency	RQD	3. A. For new construction, ensure energy efficiency is 30% better than the current American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 standard, OR B. For modernization, ensure: 1) Energy use is 20% below the fiscal year (FY) 2015 energy use baseline, OR 2) Energy use is 30% below the FY 2003 energy use baseline, OR 3) The building has an ENERGY STAR® rating of 75 or higher, OR 4) For building types not in ENERGY STAR Portfolio Manager, where adequate benchmarking data exists, the building is in the top quartile of energy performance for its building type, AND C. Use energy efficient products, as required by statute	☐ Document reduction calculation method and results ☐ ENERGY STAR Portfolio Manager documentation ☐ ENERGY STAR Portfolio Manager documentation ☐ Document reduction calculation method and results ☐ Agency or site purchasing policy ☐ Purchasing contracts ☐ Purchase orders ☐ Affirmative procurement reports ☐ Other	**Yes**	
Renewable and Clean Energy	RQD	4. Evaluate and implement, where appropriate, life cycle cost-effective renewable energy projects on-site; consider long-term off-site renewable sources and Renewable Energy Certificates (RECs); and utilize clean and alternative energy where possible.	☐ Renewable energy contract ☐ Utility records ☐ Photos of on-site renewable ☐ Photos of alternative energy ☐ Proof of purchase of RECs ☐ Other	**Yes**	