

2016 Guiding Principles for Sustainable Federal Buildings Updates Crosswalk:

New Construction and Modernization

Prepared by the U.S. Department of Energy
Federal Energy Management Program

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2016 Guiding Principles for Sustainable Federal Buildings Comparison to 2008 Guiding Principles: *New Construction and Modernization*

Executive Order 13693, Planning for Federal Sustainability in the Next Decade, March 19, 2015, called for revisions to the Guiding Principles for Sustainable Federal Buildings (*Guiding Principles*). On February 26, 2016, The White House Council on Environmental Quality, Office of Federal Sustainability, issued the 2016 version of the Guiding Principles (GP) in two documents: “Determining Compliance with the Guiding Principles for Sustainable Federal Buildings” (*GP Compliance Document*), which outlines evaluation criteria on which the Guiding Principles will be scored, and the “Guiding Principles for Sustainable Federal Buildings and Associated Instructions,” which provides instructions, guidance and recommended practices. The 2016 version of the Guiding Principles supersedes all previous versions of the Guiding Principles. This document was developed by the Federal Energy Management Program to help explain and highlight the differences between the new and previous Guiding Principles for New Construction and Modernization based on the evaluation criteria included in the GP Compliance Document.

Comparison of Scoring and Applicability

	2016 Guiding Principles for New Construction and Modernization	2008 Guiding Principles for New Construction and Major Renovation
1.	Goal is to have at least 15% (by number) of buildings or square feet meet the GPs by 2025.	Goal was to have at least 15% (by number) of buildings meet the GPs by 2015.
2.	Should be used to qualify any applicable new building or modernization over 5,000 square feet where a project design has not been completed.	Can be used to qualify any applicable new building or modernization over 5,000 square feet where project design was completed before the issuance of 2016 GPs.
3.	For new construction 20 of 21 metrics must be met and for modernization 19 of 21 metrics must be met. Agencies are encouraged to meet as many elements and sub-elements as possible.	All GPs must be met.
4.	A “Not Applicable” (N/A) response to a GP element counts towards compliance, but should be minimized.	N/A was not addressed.
5.	GPs do not pertain to leases.	GPs did pertain to leases.
6.	Life cycle cost effectiveness applies to all individual elements.	Life cycle cost effectiveness applied to select elements.
7.	Campus or installation-wide protocols and policies can be used to demonstrate compliance with the GPs.	Did not specifically address the use of campus or installation-wide protocols.
8.	Introduces a new sub-element for “Health and Wellness” and a sixth Guiding Principle, “Assess and Consider Climate Change Risks.”	Did not specifically address health and wellness nor climate change risks.
9.	Buildings that meet the 2016 GPs for New Construction and Modernization can be considered as meeting the GPs if they continue to meet ongoing sustainable operating requirements such as recommissioning every four years, benchmarking, waste diversion, etc.	Buildings that met the 2008 GPs once were considered compliant through 2015.
10.	Buildings that met the 2008 GPs are in compliance through 2025, as long as they meet ongoing EISA requirements; grandfathered buildings should also add the sixth GP, “Assess and Consider Climate Change Risks,” within four years.	Buildings that were registered for third-party certification before October 2008, and achieved certification were considered compliant with the GPs.

Updates to Requirements

Category	2016 Guiding Principles for New Construction and Modernization Evaluation Criteria	Major Updates from 2008 GPs
I. Employ Integrated Design Principles		
1. Integrated Design	<p>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.</p> <p>[Required]</p>	<ol style="list-style-type: none"> 1. Adds consideration for electric vehicle charging infrastructure. 2. Adds consideration for sustainable landscape design principles. 3. Adds consideration for health and wellness of building occupants. 4. Adds consideration for climate risks and wildfire. 5. Removes reference to the Whole Building Design Guide.
2. Commissioning	<p>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 and Federal Energy Management Program (FEMP) commissioning guidance.</p> <p>[Required]</p>	<ol style="list-style-type: none"> 1. Experienced commissioning provider must be independent of the project design, construction, and operation teams. 2. Recommission every 4 years. 3. Commissioning should be consistent with EISA 432 and FEMP guidance.

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II. Optimize Energy Performance		
3. Energy Efficiency	<p>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</p> <p>B. For modernization, ensure:</p> <ul style="list-style-type: none"> 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 <p>C. For new construction and modernization, use energy efficient products, as required by statute.</p> <p>[Required]</p>	<ul style="list-style-type: none"> 1. For new construction: <ul style="list-style-type: none"> a. Replaces ASHRAE 90.1 2007 with “current” version. b. Removes reference to ENERGY STAR targets for new construction. 2. For modernization: <ul style="list-style-type: none"> a. Adds option for 20% reduction from 2015 baseline year. b. Increases reduction from 20% to 30% from 2003 baseline year. c. Adds option of an ENERGY STAR Score of 75 or higher. d. Adds option to be in the top quartile for buildings ineligible for the ENERGY STAR Score. 3. Removes Labs21 Laboratory Modeling Guidelines as an option for laboratory spaces.

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4. Renewable and Clean Energy	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. [Required]	<ol style="list-style-type: none"> 1. Adds RECs and long-term offsite renewable sources. 2. Adds clean and alternative energy. 3. Removes reference to statutory goal for meeting hot water demand with solar hot water heaters.
5. Metering	Install building level meters for electricity, natural gas, and steam; install advanced or standard meters as appropriate. [Required]	<ol style="list-style-type: none"> 1. No significant change.
6. Benchmarking	Benchmark building performance at least annually, preferably using ENERGY STAR Portfolio Manager; regularly monitor building energy performance against historic performance data and peer buildings. [Required]	<ol style="list-style-type: none"> 1. Removes reference to ENERGY STAR design target. 2. Requires a commitment for annual benchmarking of building performance rather than a first year comparison to a benchmark. 3. Removes reference to equivalent benchmarking tools such as the Labs21 tool for laboratory buildings.
III. Protect and Conserve Water		
7. Indoor Water Use	<ol style="list-style-type: none"> A. Build to ASHRAE standard 189.1-2014 sections 6.3.2, 6.4.2, and 6.4.3, or current comparable ASHRAE standards, AND B. Use water-efficient products; install building level water meters; optimize cooling tower operations; and eliminate single pass cooling. [Required]	<ol style="list-style-type: none"> 1. Replaces requirement to be 20% better than a code-minimum building with ASHRAE 189.1 prescriptive measures. 2. Requires building level water meters. 3. Prohibits single pass cooling.

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8. Outdoor Water Use	<p>A. Separately meter water for irrigation systems greater than 25,000 square feet, AND</p> <p>B. Use water efficient landscapes, AND</p> <p>C. Limit potable water use for irrigation to 50% or more below conventional practices using methodologies from (but not the numeric requirements contained in) ASHRAE standard 189.1-2014 section 6.5.1, or current comparable ASHRAE standards, to calculate water use of conventional practices.</p> <p>[Required]</p>	<ol style="list-style-type: none"> 1. Requires installation of water meter for irrigation systems serving more than 25,000 square feet of landscaping. 2. Adds ASHRAE 189.1 methodology for calculating a reduction compared to conventional practices. 3. Removes requirement to choose irrigation contractors who are certified through a WaterSense labeled program. 4. Moves stormwater to new category, "Stormwater Management."
9. Alternative Water	<p>Consider alternative sources of water where cost-effective and permitted by local laws and regulations.</p> <p>[Required]</p>	<ol style="list-style-type: none"> 1. Moves consideration of alternative water from "Indoor Water Use" to this new category.
10. Stormwater Management	<p>For new construction meet or exceed EISA section 438 stormwater management requirements.</p> <p>[Required]</p>	<ol style="list-style-type: none"> 1. Moves stormwater management from "Outdoor Water" to this new category.

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IV. Enhance Indoor Environmental Quality		
11. Ventilation and Thermal Comfort	Meet the current ASHRAE 55 and either 62.1 or 62.2 standards for ventilation and thermal comfort. [Required]	<ol style="list-style-type: none"> 1. Replaces ASHRAE Standards 55-2004 and 62.1-2007 with “current” versions. 2. Adds ASHRAE 62.2 for Low-Rise Residential.
12. Daylighting and Lighting Controls	Maximize opportunities for daylighting in regularly occupied space, automatic dimming controls or accessible manual controls, task lighting, and shade and glare control. [Required]	<ol style="list-style-type: none"> 1. Replaces specific target amount for daylighting with the goal to “maximize opportunities for daylighting.” 2. Adds shade and glare control.
13. Indoor Air Quality	Develop and implement an indoor air quality policy that considers the following: moisture control, use of low emitting materials and products with low pollutant emissions, necessary protocols to protect indoor air quality during construction and in the finished building, prohibition of smoking in any form inside and within 25 feet of all building entrances, operable windows, and building ventilation intakes, and use of integrated pest management techniques. [Required]	<ol style="list-style-type: none"> 1. Realigns moisture control, use of low-emitting materials, indoor air quality during construction, and tobacco smoke control under one category, “Indoor Air Quality.” 2. Removes reference to “Façade renovations” and “dew point analysis” for moisture control. 3. Removes reference to SMACNA’s Indoor Air Quality Guidelines.

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		<ol style="list-style-type: none"> 4. Removes requirement to flush-out building. 5. Adds reference to integrated pest management.
14. Occupant Health and Wellness	<p>Promote opportunities for voluntary increased physical movement of building occupants such as making stairwells an option for circulation, active workstations, fitness centers, and bicycle commuter facilities; and support convenient access to healthy dining options, potable water, daylight, plants, and exterior views.</p> <p>[Required]</p>	<ol style="list-style-type: none"> 1. New GP requirement.
V. Reduce the Environmental Impact of Materials		
15. Material Content and Performance	<p>Procure products that meet the following requirements where applicable:</p> <ol style="list-style-type: none"> A. Resource Conservation and Recovery Act (RCRA) section 6002, AND B. Farm Security and Rural Investment Act (FSRIA) section 9002, AND C. Federally Recommended Specifications, Standards and Ecolabels⁵ or are on the Federal Green Procurement Compilation for other green products, as appropriate,⁶ AND D. Avoid ozone depleting compounds and high 	<ol style="list-style-type: none"> 1. Realigns recycled content, bio-based content, environmentally preferable products, and ozone depleting compounds under “Material Content and Performance.” 2. Removes reference to rapidly renewable resources and certified sustainable wood products for “other products.” 3. Adds reference to the Federally Recommended Specifications on the Federal Green Procurement Compilation for other green products. 4. Adds Global Warming Potential (GWP)

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	global warming potential (GWP) chemicals. [Required]	chemicals. 5. Removes reference to the Montreal Protocol and Title VI of the Clean Air Act Amendments.
16. Waste Diversion	Where markets exist, provide reuse and recycling services for building occupants and divert at least 50% of non-hazardous, non-construction related materials from landfills. [Required]	1. Adds specific performance target to divert at least 50% of non-hazardous, non-construction related materials.
17. Materials Management	Where markets exist, divert at least 50% of construction and demolition materials from landfills. [Required]	1. Adds specific performance target to divert at least 50% of construction and demolition materials.
VI. Assess and Consider Climate Change and Risks – NEW		
18. Mission Criticality	Determine long-term mission criticality of the physical asset and operations to be housed in the facility to inform the design of new construction and modernization to increase climate resilience. [Required]	1. New GP requirement.
19. Floodplain Considerations	For new construction, avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and avoid floodplain development	1. New GP requirement.

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	<p>whenever there is a practicable alternative.</p> <p>[Required]</p>	
20. Facility Design	<p>For new construction, balance options to address predicted climate change impacts against mission criticality, cost, and security to determine design parameters; at a minimum, include low and no cost resilience measures to address predicted climate conditions.</p> <p>[Required]</p>	<p>1. New GP requirement.</p>
21. Facility Adaptation	<p>For modernization, take action to mitigate identified risks, considering mission criticality, climate impacts, cost, and phased adaptation over time.</p> <p>[Required]</p>	<p>1. New GP requirement.</p>

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