Determining Compliance with the Guiding Principles for Sustainable Federal Buildings

February 2016

This document is a companion to the revised *Guiding Principles for Sustainable Federal Buildings* (Guiding Principles) issued by the Council on Environmental Quality in February 2016, per Executive Order 13693, *Planning for Federal Sustainability for the Next Decade*.

Full implementation of all principles, elements and sub-elements described in the Guiding Principles is strongly encouraged. The tables below include metrics for agencies to use to evaluate compliance with the Guiding Principles. For new construction, 20 out of 21 metrics are required, and for modernization, 19 out of 21 metrics are required. For existing buildings, although agencies are strongly encouraged to meet as many metrics as possible, 12 out of 18 metrics are required—eight specified plus four additional—in order to determine that a building is in compliance with the Guiding Principles.

When evaluating a building for compliance with the Guiding Principles, the new construction and modernization criteria should be applied when the project that an agency is undertaking in an existing building is essentially a comprehensive replacement or restoration of virtually all major systems, interior work (such as ceilings, partitions, doors, floor finishes, etc.), and building elements and features.

New Construction or Modernization

For new construction, metrics number one through 20 are required, and for modernization, metrics number one through 18 and number 21 are required, as specified below.

	I. Employ Integrated Design Principles	**Yes/No**
1	**Integrated Design:** 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. **[Required]**	
2	**Commissioning:** 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] **[Required]**	
	II. Optimize Energy Performance	
3	**Energy Efficiency:** 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. For new construction and modernization, use energy efficient products, as required by statute.[3] **[Required]**	
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]**	
5	**Metering:** Install building level meters for electricity, natural gas, and steam; install advanced or standard meters as appropriate. **[Required]**	
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.[4] **[Required]**	
	III. Protect and Conserve Water	
7	**Indoor Water Use:** 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]**	
8	**Outdoor Water Use:** A. Separately meter water for irrigation systems greater than 25,000 square feet, AND B. Use water efficient landscapes, AND C. Limit potable water use for irrigation to 50% or more below conventional practices using methodologies from (but not the numeric requirements	

[1] Guidance for the Implementation and Follow-up on Identified Energy and Water Efficiency Measures in Covered Facilities (per 42 U.S.C. 8253(f), Use of Energy and Water Measures in Federal Buildings September 2012: energy.gov/sites/prod/files/2013/10/f4/eisa_project_guidance.pdf)
[2] energy.gov/sites/prod/files/2014/07/f17/commissioning_fed_facilities.pdf
[3] 42 U.S.C. § 8259(b) and 10 C.F.R. § 436.40 et seq.
[4] 42 U.S.C. § 8253(f) (8); energy.gov/sites/prod/files/2014/09/f18/benchmarking_guidance08-2014.pdf

	contained in) ASHRAE standard 189.1-2014 section 6.5.1, or current comparable ASHRAE standards, to calculate water use of conventional practices. **[Required]**	
9	**Alternative Water:** Consider alternative sources of water where cost-effective and permitted by local laws and regulations. **[Required]**	
10	**Stormwater Management:** For new construction meet or exceed EISA section 438 stormwater management requirements. **[Required]**	
	IV. Enhance Indoor Environmental Quality	
11	**Ventilation and Thermal Comfort**: Meet current ASHRAE standards 55 and either 62.1 or 62.2 for ventilation and thermal comfort. **[Required]**	
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]**	
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]**	
14	**Occupant Health and Wellness:** 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. **[Required]**	
	V. Reduce the Environmental Impact of Materials	
15	**Material Content and Performance:** Procure products that meet the following requirements where applicable: 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 Ecolabels[5] or are on the Federal Green Procurement Compilation for other green products, as appropriate,[6] AND D. Avoid ozone depleting compounds and high global warming potential (GWP) chemicals. **[Required]**	
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]**	
17	**Materials Management:** Where markets exist, divert at least 50% of construction and demolition materials from landfills. **[Required]**	
	VI. Assess and Consider Climate Change Risks	
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	

[5] www2.epa.gov/greenerproducts/epas-recommendations-specifications-standards-and-ecolabels
[6] Green Procurement Compilation: sftool.gov/greenprocurement

	construction and modernization to increase climate resilience. **[Required]**	
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 whenever there is a practicable alternative. **[Required]**	
20	**Facility Design:** 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. **[Required]**	
21	**Facility Adaptation:** For modernization, take action to mitigate identified risks, considering mission criticality, climate impacts, cost, and phased adaptation over time. **[Required]**	

Existing Buildings

Twelve out of 18 metrics are required—eight that are specified as required plus four additional. Any metric determined to be "not applicable" cannot be counted toward the 12 required.

	I. Employ Integrated Assessment, Operation, and Management Principles	**Yes/No**
1	**Integrated Assessment, Operation, and Management:** Through an integrated process and team, assess building and operating conditions and identify areas for improvement; establish operational goals for environmental performance; and incorporate goals into building management. **[Required]**	
2	**Commissioning:** Commissioning reports for certification purposes must be completed within two years prior to certification date. Recommissioning should be completed at least every four years thereafter to optimize building performance. Use commissioning agents who are independent of the design and construction or operating team. Commissioning should be consistent with EISA section 432[7] and FEMP commissioning guidance.[8] **[Required]**	
	II. Optimize Energy Performance	
3	**Energy Efficiency:** A) Ensure: 1. The building has an ENERGY STAR rating of 75 or higher, OR 2. Energy use is 20% below the FY 2015 energy use baseline, OR 3. Energy use is 30% below the FY 2003 energy use baseline, OR 4. Energy efficiency is 30% better than the current ASHRAE 90.1 standard, AND B) Use energy efficient products, as required by statute.[9] **[Required]**	
4	**Renewable and Clean Energy:** Evaluate and implement, where appropriate, life cycle cost-effective renewable energy projects on-site; consider long-term	

[7] Guidance for the Implementation and Follow-up on Identified Energy and Water Efficiency Measures in Covered Facilities (per 42 U.S.C. 8253(f), Use of Energy and Water Measures in Federal Buildings, September 2012: energy.gov/sites/prod/files/2013/10/f4/eisa_project_guidance.pdf)

[8] energy.gov/sites/prod/files/2014/07/f17/commissioning_fed_facilities.pdf

[9] 42 U.S.C. § 8259(b) and 10 C.F.R. § 436.40 et seq.

	offsite renewable sources and RECs; and utilize clean and alternative energy were possible.	
5	**Metering:** Install building level meters for electricity, natural gas, and steam; install advanced or standard meters as appropriate.	
6	**Benchmarking**: Compare building performance with energy performance benchmarks at least annually, preferably using ENERGY STAR Portfolio Manager; regularly monitor building energy performance against historic performance data and peer buildings.[10]	
	III. Protect and Conserve Water	
7	**Indoor water use:** A. Install building level water meters, reduce water use 20% below FY 2007 baseline, and use water efficient products, OR B. Install building level meters, conduct an analysis of water use,[11] identify and repair leaks, eliminate single pass cooling, optimize cooling tower operations, and use water efficient products. **[Required]**	
8	**Outdoor Water Use**: A. Install water meters for irrigation systems serving more than 25,000 square feet of landscape, AND B. Either: 1. Use water efficient landscaping, OR 2. 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 standard, to calculate water use of conventional practices.	
9	**Alternative Water:** Consider alternative sources of water where cost-effective and permitted by local laws and regulations.	
10	**Stormwater Management:** Employ strategies that reduce storm water runoff and discharges of polluted water offsite to protect the natural hydrology and watershed health.	
	IV. Enhance Indoor Environmental Quality	
11	**Ventilation and Thermal Comfort:** Meet the current ASHRAE 55 and either 62.1or 62.2 standards for ventilation and thermal comfort. **[Required]**	
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.	
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	

[10] 42 U.S.C. § 8253(f) (8); energy.gov/sites/prod/files/2014/09/f18/benchmarking_guidance08-2014.pdf

[11] www.energy.gov/eere/femp/developing-water-management-plan can provide an understanding of how to develop a water use analysis

	management techniques.	
14	**Occupant Health and Wellness:** Where feasible, 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.	
	V. Reduce the Environmental Impact of Materials	
15	**Material Content and Performance:** Procure products that meet the following requirements where applicable: A. RCRA section 6002, AND B. FSRIA section 9002, AND C. Federally Recommended Specifications, Standards and Ecolabels[12] or are on the Federal Green Procurement Compilation for other green products, as appropriate,[13] AND D. Avoid ozone depleting compounds and high GWP chemicals. **[Required]**	
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]**	
17	**Materials Management:** Where markets exist, divert at least 50% of construction and demolition materials from landfills.	
	VI. Assess and Consider Climate Change Risks	
18	**Climate Resilience and Adaptation:** A. Determine long-term mission criticality of the physical asset and operations to be housed in the facility, AND B. Evaluate climate change impacts, including wildfire, based on mission criticality and cost, AND C. Implement no and low cost actions to increase climate resilience. **[Required]**	

[12] www2.epa.gov/greenerproducts/epas-recommendations-specifications-standards-and-ecolabels
[13] Green Procurement Compilation: sftool.gov/greenprocurement