

## GSA's 2016 Guiding Principles Checklist for New Construction and Major Modernization Projects

GPC #	Criterion Name	2016 GPC Language
<b>I. INTEGRATED DESIGN</b>		
1	<b>Integrated Design</b>	<p>Use a multidisciplinary integrated project team to establish energy, water, sustainable landscape design, and other environmental performance goals during design.</p> <p>Consider design choices that improve performance, support occupants' health and wellness, and consider climate risks including wildfire. Integrated design should consider all stages of the building's life cycle, including deconstruction.</p> <p>References:                      - Integrated Design Process: <a href="http://www.wbdg.org/design/engage_process.php">http://www.wbdg.org/design/engage_process.php</a>                      - LEED "Integrative Process" (NC) (CS) (CI) credit</p>
2	<b>Commissioning</b>	<p>A. Hire a qualified commissioning agent independent of the design and construction or operations team, at the beginning of design. Commissioning should optimize building performance and be tailored to the project's size and complexity. The commissioning agent should work for GSA, or, at minimum, a Construction Manager as Agent (CMA) firm hired by GSA. Please explain.</p> <p>B. Upload into ePM a Commissioning Plan that meets or exceeds LEED's "Fundamental Commissioning and Verification" prerequisite. State which systems' installation and performance was commissioned. AND,</p> <p>C. Provide a Commissioning Report that confirms whether identified issues were appropriately addressed.</p> <p>References:                      - GSA Building Commissioning Guide: <a href="https://www.gsa.gov/graphics/pbs/BCG_3_30_Final_R2-x221_0Z5RDZ-i34K-pR.pdf">https://www.gsa.gov/graphics/pbs/BCG_3_30_Final_R2-x221_0Z5RDZ-i34K-pR.pdf</a>                      - PBS P100 Facilities Standards ("P100") § 1.10.2.6 "Total Building Commissioning"                      - GSA Schedule 871: <a href="https://www.gsa.gov/portal/content/245467">https://www.gsa.gov/portal/content/245467</a>                      - LEED "Fundamental Commissioning and Verification" (NC) (CS) (CI) (EB) and "Enhanced Commissioning" (NC) (CS) (CI) (EB) credits</p>
3	<b>Site Selection</b>	<p>Potential sites are evaluated by the PBS Portfolio office, before a project receives its Congressional appropriation. If possible, upload the project's Site Selection Report and NEPA analysis into ePM, and describe the file's location in this GPC's comment.</p> <p>Insert a brief comment about this the site's environmental impact, and whether floodplains and wetlands were avoided.</p> <p>References:                      - P100 § 2.2.1 "Sustainable Locations": avoid the adverse impacts associated with development on sensitive sites such as floodplains, wetlands, greenfields, farmland, and habitat for pollinators or threatened/ endangered species.                      - GSA order ADM 1097.1, "Incorporating Principles of Sustainability, Economic Development and Efficiency into GSA Business Practices and Location Decision-making": <a href="http://www.gsa.gov/portal/directive/d0/content/697578">http://www.gsa.gov/portal/directive/d0/content/697578</a>                      - PBS Floodplains Management Desk Guide: <a href="http://www.gsa.gov/portal/content/100860">http://www.gsa.gov/portal/content/100860</a>                      - CEQ's "Sustainable Locations for Federal Facilities" implementing instructions: <a href="https://www.whitehouse.gov/sites/default/files/microsites/ceq/implementing_instructions_-_sustainable_locations_for_federal_facilities_9152011.pdf">https://www.whitehouse.gov/sites/default/files/microsites/ceq/implementing_instructions_-_sustainable_locations_for_federal_facilities_9152011.pdf</a>                      - LEED "Site Assessment" (NC), "Site Development - Protect or Restore Habitat" (NC) (CS), "Sensitive Land Protection" (NC), "High Priority Site" (NC), and "Surrounding Density and Diverse Uses" (NC) (CS) (CI) credits</p>
4	<b>Transportation</b>	<p>A. Evaluate electric vehicle charging needs, including fleet charging infrastructure, and include to the extent feasible. Minimize onsite automobile parking where transit alternatives are readily available.</p> <p>B. Provide secure, dedicated onsite bicycle parking facilities with direct, safe pedestrian access from the main entrances of the building for at least five percent of building users. Design onsite pedestrian and bike paths to provide safe, clear connections directly to adjacent neighborhood streets, transit, pedestrian routes, bike paths, and local amenities. AND,</p> <p>C. Address whether building location is within 1/4 mile walk distance of fixed route, high-frequency bus service or 1/2 mile walk distance of bus rapid transit stops, commuter rail, light rail, or subway stations.</p> <p>References:                      - P100 § 2.2.1.3 "Site Supports Neighborhood Connectivity, Walkability, and Bikeability"                      - GSA Order on "Providing Electric Vehicle Supply Equipment Infrastructure"                      - LEED "Reduced Parking Footprint" (NC) (CS), "Bicycle Facilities" (NC) (CI), and "Access to Quality Transit" (NC) (CS) (ID+C) credits</p>

5	<b>Safeguarding Assets</b>	<p>Paste in narrative explaining how climate-related and extreme weather risks are being managed, per P100 § 1.10.3, or paste in narrative from relevant A/E SOW deliverables. Otherwise, answer questions A through C:</p> <p>A. Address risks from observed and expected changes in climate, per the risk management elements of GSA's Regional Office/Central Office (RO/CO) project review; the Capital Investment and Leasing Program's (CILP) section on "Enhancing Resilience And Reducing Vulnerability To Observed And Expected Changes In Climate"; and P100 § 1.10.3 "Resilience: Management of Climate-Related and Extreme Weather Risks".</p> <p>B. Assess the observed and expected impacts for the intended service life of the asset's building enclosure and site development (i.e. drainage, access/egress). Does this investment support core mission-related functions that are affected by impacts from the observed and expected changes in climate (i.e. energy/water surety requirements)? Is this a culturally or historically significant asset? AND,</p> <p>C. Balance design options against budget, mission, and security. Address the risk exposure to the observed and expected changes in climate: Can the building adapt now and in the future? Identify outcome-focused, performance-based thresholds to monitor and manage the asset as conditions change to mitigate risks to mission while providing acceptable performance for the asset's service life.</p>
<b>II. Optimize ENERGY Performance</b>		
6	<b>Energy Star</b>	<p>Use Energy Star or FEMP-designated energy efficient products, e.g. appliances. (Per EISA 2007 §§ 323 &amp; 525)</p> <p>References:  - Energy Star Certified Products: <a href="https://www.energystar.gov/products">https://www.energystar.gov/products</a>  - LEED "Purchasing - Ongoing" (EB) credit</p>
7	<b>Energy Efficiency</b>	<p>For new construction: ensure that energy efficiency target is at least 30% better than the current ASHRAE 90.1 standard. (Per EAct 2005 § 109)</p> <p>For new construction OR modernizations: set an energy goal that achieves a fossil-fuel reduction of at least 65%, compared to a CBECs 2003 baseline. (Per EISA 2007 § 433)</p> <p>For modernizations, ALSO ensure one of the following:  1) Energy use target is at least 20% below the fiscal year (FY) 2015 energy use baseline;  2) Energy use target is at least 30% below the FY 2003 energy use baseline;  3) The building has an ENERGY STAR® rating of 75 or higher; OR  4) If the building type is not in ENERGY STAR Portfolio Manager, the building is in the top quartile of energy performance for its building type, compared to adequate benchmarking data.</p> <p>References:  - Optimizing Energy Use: <a href="http://www.wbdg.org/design/minimize_consumption.php">http://www.wbdg.org/design/minimize_consumption.php</a>  - Fossil fuel reduction target guidance: <a href="http://architecture2030.org/2030_challenges/2030-challenge/">http://architecture2030.org/2030_challenges/2030-challenge/</a>  - P100 § 5.4 "Whole Building Energy Performance Requirements"  - LEED "Minimum Energy Performance" (NC) (CS) (CI) (EB) and "Optimize Energy Performance" (NC) (CS) (CI) (EB) credits</p>
8	<b>Renewable and Clean Energy</b>	<p>Evaluate and implement, where appropriate and life cycle cost-effective, renewable energy projects on-site, including solar thermal to meet 30% of building's anticipated hot water demand. (Per EISA 2007 § 523.) Document evaluation of onsite renewable energy sources (e.g. photovoltaic, geothermal, or wind energy), and upload into ePM. Evaluation tools include PV Watts and Solar Prospector.</p> <p>References:  - Solar Hot Water Cost and Efficiency Estimation Guide: <a href="http://energy.gov/energysaver/estimating-cost-and-energy-efficiency-solar-water-heater">http://energy.gov/energysaver/estimating-cost-and-energy-efficiency-solar-water-heater</a>  - Integrating Renewable Energy in Federal Construction: <a href="http://www.wbdg.org/ffc/doe/criteria/guide-integrating-renewable-energy-federal-construction">http://www.wbdg.org/ffc/doe/criteria/guide-integrating-renewable-energy-federal-construction</a>  - Renewable Energy Projects and Resources: <a href="http://energy.gov/eere/femp/federal-renewable-energy-projects-and-technologies">http://energy.gov/eere/femp/federal-renewable-energy-projects-and-technologies</a>  - LEED "Renewable Energy Production" (NC) (CS) (CI) (EB) and "Green Power and Carbon Offsets" (NC) (CS) (CI) (EB) credits</p>
9	<b>Metering - Energy and Water</b>	<p>A. Install building-level meters for electricity, natural gas, steam, and water. AND,</p> <p>B. Install advanced meters for electricity, as required by EAct 2005 § 103 and P100 § 6.5.3.4. Install advanced meters for natural gas and steam to the maximum extent practicable, per EISA 2007 § 434.</p> <p>Reference: LEED "Advanced energy metering" (NC) (CS) (CI) (EB), "Building-level energy metering" (NC) (CS) (CI) (EB), and "Water Metering" (NC) (CS) (CI) (EB) credits</p>

10	<b>Benchmarking</b>	<p>If necessary due to substantial energy performance energy usage intensity variance from design target, and requested by GSA, A/E team representative(s) shall participate in a brief, cooperative central office-led discussion with O&amp;M and/or commissioning staff, to better-understand design assumptions, operating conditions, and potential causes.</p> <p>GSA's regional energy coordinators regularly monitor building energy performance against historic performance data and peer buildings. GSA's Light-Touch Measurement &amp; Verification process also provides quarterly transparency into actual energy usage.</p> <p>Reference: LEED "Measurement and Verification" (NC) credit</p>
<b>III. Protect and Conserve WATER</b>		
11	<b>Indoor Water Use/ Cooling Towers</b>	<p>A. Build to ASHRAE standard 189.1-2014 sections 6.3.2, 6.4.2, and 6.4.3.</p> <p>B. Use water-efficient (e.g. EPA WaterSense) products. Specify which ePM-stored documentation shows that WaterSense products were specified. AND</p> <p>C. Do not use single-pass cooling with potable water. Optimize cooling tower operations -- e.g. by using condensate recovery, limiting discharge water, and/or using efficient drift eliminators.</p> <p>References:  - Water Conservation: <a href="http://www.wbdg.org/resources/water_conservation.php?r=fhpsb_new">http://www.wbdg.org/resources/water_conservation.php?r=fhpsb_new</a>  - WaterSense Products: <a href="https://www3.epa.gov/watersense/products/">https://www3.epa.gov/watersense/products/</a>  - LEED "Building-Level Water Metering" (NC) (CS) (EB), "Cooling Tower Water Use" (NC) (CS) (EB), and "Indoor Water Use Reduction" (CI) (EB) credits</p>
12	<b>Outdoor Water Use</b>	<p>A. Separately meter water for irrigation systems greater than 25,000 square feet;</p> <p>B. For irrigation systems, implement smart controllers that use evapotranspiration and weather data;</p> <p>C. Use water efficient landscapes, pursuant to GSA's mandatory SITES certification policy (P100 § 2.5.6); AND</p> <p>D. Limit potable water use for irrigating vegetated areas of the site to 50% below conventional practices' water demand, or less. Determine conventional practices' water demand using actual methods and standards from the SITES standard.</p> <p>References:  - SITES Rating System: <a href="http://www.sustainablesites.org/certification">http://www.sustainablesites.org/certification</a>  - Protect and Conserve Water: <a href="http://www.wbdg.org/design/conservate_water.php">http://www.wbdg.org/design/conservate_water.php</a>  - LEED "Outdoor Water Use Reduction" (NC) (CS) (CI) (EB) credit</p>
13	<b>Alternative Water</b>	<p>Consider alternative sources of water (such as capturing rainwater, graywater, and/or condensation from cooling coils) where cost-effective and permitted by local laws and regulations. Where feasible, design outdoor water features to avoid usage of make-up water from potable sources.</p> <p>Reference: LEED "Water Efficient Landscaping" (NC) (EB) credit</p>
14	<b>Outdoor Water - Manage Rain</b>	<p>Projects that disturb at least 5,000 SF of site surface area shall manage the 95th percentile rain event onsite through infiltration, reuse, and/or evapotranspiration, per EISA 2007 § 438 stormwater requirements. Strategies include permeable paving, vegetated roofs, rain gardens, or other low-impact development techniques. See also "Safeguarding Assets" and "Outdoor Water Use" GPCs.</p> <p>References:  - Stormwater Runoff Mitigation: <a href="http://www.wbdg.org/references/mou_sw.php">http://www.wbdg.org/references/mou_sw.php</a>  - EPA Technical Guidance: <a href="https://www.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf">https://www.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf</a>  - LEED "Rainwater Management" (NC) (CS) (CI) (EB) credit</p>
<b>IV. Enhance INDOOR ENVIRONMENTAL QUALITY</b>		
15	<b>Ventilation and Thermal Comfort</b>	<p>Meet current ASHRAE standards: 55 for thermal comfort, and either 62.1 or 62.2 for ventilation. Upload ASHRAE 62.1 Calculator or other supporting documentation into ePM.</p> <p>Consider efficiency strategies including natural ventilation, thermal recovery systems, separate HVAC systems for 24/7 spaces, and radiant space conditioning (e.g. chilled beams and/or radiant floors.)</p> <p>References:  - High-Performance HVAC: <a href="http://www.wbdg.org/resources/high-performance-hvac?r=retro_sustperf">http://www.wbdg.org/resources/high-performance-hvac?r=retro_sustperf</a>  - LEED "Thermal Comfort" (NC) (CS) (CI) (EB) credit</p>
16	<b>Daylighting and Lighting Controls</b>	<p>Maximize opportunities for daylighting in regularly occupied space, e.g. by considering building orientation and glazing options. Where feasible, incorporate automatic dimming daylight sensors, occupancy sensors, manual controls, task lighting, and/or shade/glare control. Consider the effects of solar heat gain.</p> <p>Provide occupant lighting controls in accordance with GSA P100 Lighting standards, e.g. § 6.2.1, "Lighting Quality".</p> <p>References:  - Daylighting: <a href="http://www.wbdg.org/references/mou_daylight.php">http://www.wbdg.org/references/mou_daylight.php</a>  - Lighting Controls: <a href="http://www.wbdg.org/resources/electriclighting.php?r=retro_sustperf">http://www.wbdg.org/resources/electriclighting.php?r=retro_sustperf</a>  - LEED "Interior Lighting" (NC) (CS) (CI) and "Daylight" (NC) (CS) (CI) credits</p>

17	<b>Indoor Air Quality</b>	<p>A. Develop and implement an Indoor Air Quality Plan. The IAQ Plan should address moisture control, use of low-emitting materials and products with low pollutant emissions, protocols to protect indoor air quality during and after construction, and use of integrated pest management techniques. Describe where IAQ plan is saved in ePM.</p> <p>B. Ensure the design includes signage/ notifications to prohibit smoking within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes. Consider designating outdoor smoking areas that meet these criteria, and limiting smoking to only these designated areas.</p> <p>References:</p> <ul style="list-style-type: none"> <li>- GSA Smoking Policy (5800.1C ADM): <a href="http://www.gsa.gov/portal/directive/d0/content/520618">http://www.gsa.gov/portal/directive/d0/content/520618</a></li> <li>- Indoor Environmental Quality: <a href="http://www.wbdg.org/design-objectives/sustainable/enhance-indoor-environmental-quality">http://www.wbdg.org/design-objectives/sustainable/enhance-indoor-environmental-quality</a></li> <li>- Mold and Moisture: <a href="http://www.wbdg.org/resources/mold-and-moisture-dynamics?r=fhpsb_existin">http://www.wbdg.org/resources/mold-and-moisture-dynamics?r=fhpsb_existin</a></li> <li>- LEED "Low-Emitting Materials" (NC) (CS) (CI) (EB), "Construction Indoor Air Quality Management Plan" (NC) (CS) (CI), "Indoor Air Quality Assessment" (NC) (CS) (CI), and "Environmental Tobacco Smoke Control" (NC) (CS) (CI) (EB) credits</li> </ul>
18	<b>Occupant Health and Wellness</b>	<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. Support convenient access to potable water, daylight, plants, and exterior views. Ensure building design provides access to, or space for, healthy dining options.</p> <p>References:</p> <ul style="list-style-type: none"> <li>- FITWEL certification program identifies best practices; FITWEL certification can demonstrate compliance: <a href="http://www.gsa.gov/portal/content/118614">http://www.gsa.gov/portal/content/118614</a></li> <li>- LEED "Quality Views" credit (NC) (CI)</li> </ul>
<b>V. Reduce the Environmental Impact of MATERIALS</b>		
19	<b>Material Content and Performance</b>	<p>Specify products that meet GSA's Key Sustainable Product (KSP) requirements in these categories: nylon carpet, interior latex paint, gypsum board, acoustical ceiling tiles, and concrete. Specify which documentation in ePM shows compliance.</p> <p>References:</p> <ul style="list-style-type: none"> <li>- Key Sustainable Product list: <a href="https://sftool.gov/greenprocurement/green-products/1037/key-sustainable-products/9">https://sftool.gov/greenprocurement/green-products/1037/key-sustainable-products/9</a></li> <li>- Green Procurement Compilation (lists all Federal green purchasing requirements, including ones beyond this GPC's KSP requirement): <a href="https://sftool.gov/greenprocurement">https://sftool.gov/greenprocurement</a></li> <li>- LEED credits for "Building Life-Cycle Impact Reduction" (NC) (CS) (CI) (EB), "Building Product Disclosure and Optimization - Environmental Product Declarations" (NC) (CS) (CI) (EB), "Building Product Disclosure and Optimization - Sourcing of Raw Materials" (NC) (CS) (CI) (EB), "Building Product Disclosure and Optimization - Material Ingredients" (NC) (CS) (CI) (EB), "Fundamental Refrigerant Management" (NC) (CS) (CI) (EB), and "Enhanced Refrigerant Management" (NC) (CS) (CI) (EB)</li> </ul>
20	<b>Waste Diversion (MSW)</b>	<p>Ensure building design provides space appropriate for collection and storage of municipal solid waste (MSW) materials for recycling -- and, where practical, composting. Consider odor and pest management aspects of satellite accumulation areas such as loading docks.</p> <p>References:</p> <ul style="list-style-type: none"> <li>- Recycling space locations: <a href="https://sftool.gov/explore/green-building/section/57/solid-waste/system-overview#break-pantry/waste-bins">https://sftool.gov/explore/green-building/section/57/solid-waste/system-overview#break-pantry/waste-bins</a></li> <li>- LEED "Storage and Collection of Recyclables" (NC) (CS) (CI) (ID+C) credit</li> </ul>
21	<b>Materials Management (C&amp;D)</b>	<p>Establish a construction &amp; demolition (C&amp;D) waste diversion goal. Seek to maximize materials salvaged, recycled, reused, or donated.</p> <p>Divert at least 50% of non-hazardous construction and demolition materials from landfills, where markets exist, and report total diverted/landfilled tonnage figures at substantial completion, via gBUILD's KPM&gt; Waste Management subtab. Upload waste and recycling manifests or reports into ePM.</p> <p>References:</p> <ul style="list-style-type: none"> <li>- EPA Volume-to-Weight Conversion Factors: <a href="https://www.epa.gov/smm/volume-weight-conversion-factors-solid-waste">https://www.epa.gov/smm/volume-weight-conversion-factors-solid-waste</a></li> <li>- Construction Waste: <a href="http://www.wbdg.org/references/mou_cw.php">http://www.wbdg.org/references/mou_cw.php</a></li> <li>- LEED "Construction and Demolition Waste Management Planning" (NC) (CS) (EB) and "Construction and Demolition Waste Management" (NC) (CS) (CI) (EB) credits</li> </ul>

GSA's new construction and major modernization projects shall follow this checklist to the maximum feasible extent during project design and construction, per GSA's P100 Facilities Standards for the Public Buildings Service § 1.7.3. Executive Order 13834 § 2(e) requires new construction and major renovations to conform with "sustainable design principles" such as the Council on Environmental Quality's Guiding Principles for Sustainable Federal Buildings. GSA's gBUILD system enables project delivery teams to report how these Criteria are being implemented.

[Reference: U.S. Department of Energy's Guiding Principles website](#)