

U.S. Department of the Interior

Sustainable Buildings Assessment and Compliance Tool

This Departmental Sustainable Buildings Assessment Compliance Tool (Tool) implements the Department's Sustainable Buildings Implementation Plan (SBIP). The SBIP implements the sustainable building requirements of Executive Order 13423, the Energy Independence and Security Act, and the Energy Policy Act of 2005. Note, the SBIP issued in June 2008 is undergoing review to integrate the sustainable building requirements of the new Executive Order 13514. Executive Order 13514 requirements are consistent with all previous requirements in that applicable buildings must meet 100% of the Guiding Principles for High Performance and Sustainable Buildings (GPs) to be considered "sustainable."

An explanation of buildings that must comply with this Tool is found in the latest version of the SBIP. The compliance checklists contained in this Tool are checklists which directly represent the requirements of the GPs and therefore the requirements of the SBIP. The current version of the SBIP and the current version GPs, issued in December 2008 by the Office of Management and Budget (OMB), are available on-line at www.doi.gov/greening.

This Tool was previously issued in final draft on April 23, 2009 as an attachment to the Departmental of the Interior Guidance Release for American Reinvestment and Recovery Act requirements, ARRA-2009-01 (ARRA DIG), and again on August 11, 2009 as an attachment to ARRA DIG Amendment. This final Tool is substantively the same as the final draft issued with the ARRA DIG and the ARRA DIG Amendment. This Tool replaces the final draft version in the ARRA DIG. In summary, the ARRA DIG requires that all projects for all applicable Department owned buildings funded by ARRA undergo a mandatory implementation review of this Tool to ensure that the building is brought into compliance with all applicable requirements as allowed by ARRA deadlines.

This Tool is a Microsoft Excel workbook with six worksheets (or tabs below):

- 1) This Introduction,
- 2) The Compliance Checklist for New Construction and Major Renovations,
- 3) The Guidance for Using the New Construction and Major Renovations Checklist,
- 4) The Compliance Checklist for Existing Buildings,
- 5) The Guidance for Using the Existing Buildings Checklist, and
- 6) Historic Building Definitions.

Printing tip - to print all worksheets (or Tabs) in this Tool, select "entire workbook" under the "print what" section of the printing menu (same menu where you select the number of copies to print).

U.S. Department of the Interior Sustainable Building Assessment and Compliance Tool

Guiding Principles for Sustainable New Construction and Major Renovations

To be used during all design and construction phases.

Checklist also serves as compliance assessment and verification form, to be completed post-construction.

		Name _____ Signature _____								
		Title _____ Date _____								
		Bureau _____ Location _____								
		Building FRPP ID # _____								
			Meets (if grey, meet one option)	Does Not Meet	In Process (Provide Explanation)	Harms Historic Integrity (MR)	Explanation	Documents on file		
Integrated Design	Integrated Design	Use a collaborative, integrated planning and design process that: Initiates and maintains an integrated project team as described on the Whole Building Design Guide in all stages of a project's planning and delivery.								
		Integrates the use of OMB's A-11, Section 7, Exhibit 300: Capital Asset Plan and Business Case Summary .								
		Establishes performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals and ensures incorporation of these goals throughout the design and lifecycle of the building, and								
		Considers all stages of the building's lifecycle, including deconstruction.								
Commissioning	Commissioning	Employ commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include: An experienced commissioning provider ,								
		Inclusion of commissioning requirements in construction documents ,								
		A commissioning plan ,								
		Verification of the installation and performance of systems to be commissioned, and A commissioning report .								
Energy Performance	Energy Efficiency	Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and Design to earn the ENERGY STAR® targets for new construction and major renovation, where applicable. Use ENERGY STAR® and FEMP-designated Energy Efficient Products , where available. For new construction: reduce the energy use by 30% compared to the baseline building performance rating per the American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE)/Illuminating Engineering Society of North America (IESNA) Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential. For major renovations: reduce the energy use by 20% below pre-renovations 2003 baseline, Laboratory spaces may use the Labs21 Laboratory Modeling Guidelines.								
		Per the Energy Independence and Security Act (EISA) Section 523, meet at least 30% of the hot water demand through the installation of solar hot water heaters, when lifecycle cost effective .								
		Per Executive Order 13423, implement renewable energy generation projects on agency property for agency use, when lifecycle cost effective .								
		Per the Energy Policy Act of 2005 (EPA) Section 103, install building level electricity meters in new major construction and renovation projects to track and continuously optimize performance. Per EISA Section 434, include equivalent meters for natural gas and steam, where natural gas and steam are used.								
		Alternative 1 - Compare actual performance data from the first year of operation with the energy design target, preferably by using ENERGY STAR® Portfolio Manager for building and space types covered by ENERGY STAR®. For other building and space types, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings. Verify that the building performance meets or exceeds the design target, or Alternative 2 - Verify that actual energy use is within 10% of the design energy budget for all other building types.								
Water Quality and Performance	Indoor Water	Employ strategies that in aggregate use a minimum of 20% less potable water than the indoor water use baseline calculated for the building, after meeting the EPA 1992, Uniform Plumbing Codes 2006, and the International Plumbing Codes 2006 fixture performance requirements. The installation of water meters is encouraged to allow for the management of water use during occupancy. The use of harvested rainwater , treated wastewater, air conditioner condensate should also be considered and used where feasible for nonpotable use and potable use where allowed.								
		Use water efficient landscape and irrigation strategies, such as water reuse, recycling, and the use of harvested rainwater, to reduce outdoor potable water consumption by a minimum of 50% over that consumed by conventional means (plant species and plant densities). The installation of water meters for locations with significant outdoor water use is encouraged . Employ design and construction strategies that reduce storm water runoff and discharges of polluted water offsite.								
	Outdoor Water	Per EISA Section 438, to the maximum extent technically feasible, maintain or restore the predevelopment hydrology of the site with regard to temperature, rate, volume, duration of flow using site planning, design, construction, and maintenance strategies.								
		Per the Energy Policy Act of 2005 Section 109, when potable water is used to improve a building's energy efficiency, deploy lifecycle cost effective water conservation measures.								
	Process Water	Specify EPA's WaterSense-labeled products or other water conserving products, where available.								
Water-Efficient Products	Choose irrigation contractors who are certified through a WaterSense labeled program.									

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Requirements		Name _____ Signature _____	Title _____ Date _____	Bureau _____ Location _____	Building FRPP ID # _____	Meets (if grey, meet one option)	Does Not Meet	In Process (Provide Explanation)	Harms Historic Integrity (MR)	Explanation	Documents on file
Indoor Environmental Quality	Ventilation and Thermal Comfort	Meet ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone									
		Meet ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality.									
	Moisture Control	Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks related to moisture.									
	Daylighting	Achieve minimum daylight factor of 2% (excluding all direct sunlight penetration) in 75% of all space occupied for critical visual tasks. Alternative 1 - Provide automatic dimming controls, or Alternative 2 - Provide accessible manual lighting controls. Provide appropriate glare control .									
	Low-Emitting Materials	Specify materials and products with low pollutant emissions , including composite wood products, adhesives, sealants, interior paints and finishes, carpet systems, and furnishings.									
	Protect Indoor Air Quality during Construction	Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 2007: After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60% , and After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.									
	Environmental Tobacco Smoke Control	Implement a policy and post signage indicating that: Prohibits smoking within the building , and Prohibits smoking within 25 ft of all building entrances, operable windows, and building ventilation intakes during building occupancy.									
Materials Selection	Recycled Content	Per Section 6002 of the Resource Conservation and Recovery Act (RCRA), for EPA-designated products, specify products meeting or exceeding EPA's recycled content recommendations. If EPA-designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, <u>operation, maintenance of, or use in, the building.</u> For other products, specify materials with recycled content when practicable.									
	Biobased Content	Per Section 9002 of the Farm Security and Rural Investment Act (FSRIA), for USDA-designated products, specify products with the highest content level per USDA's biobased content recommendations. If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. For other products, specify biobased products made from rapidly renewable resources. For other products, specify biobased products made from certified sustainable wood products.									
	Environmentally Preferable Products	Use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared to competing products or services that serve the same purpose.									
	Waste and Materials Management	Incorporate adequate space, equipment, and transport accommodations for recycling in the building design. During a project's planning stage, identify whether and where local recycling and salvage operations exist that could process site-related construction and demolition materials. During construction, recycle or salvage at least 50% of the non-hazardous construction, demolition and land clearing materials, excluding soil, where markets or onsite recycling opportunities exist. For Major Renovations: Provide salvage, reuse and recycling services for waste generated, where markets or onsite recycling opportunities exist.									
	Ozone Depleting Compounds	Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts.									

**U.S. Department of the Interior Sustainable Building Assessment and Compliance Tool
NEW CONSTRUCTION AND MAJOR RENOVATION GUIDANCE**

Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
<p>Is the building historic? Is it eligible for or listed in the National Register of Historic Places or is it a National Historic Landmark?</p>	<p>See Historic Status field in the Federal Real Property Profile (FRPP). If the Historic Status of a building is (1) National Historic Landmark, (2) National Register Listed, or (3) National Register Eligible, all considerations in the "Guidance for Historic Buildings" column must be followed. External modifications to (4) Non-contributing Element of NHL/NRL District should be reviewed for potential adverse impacts to the historic character of the district. If the Historic Status of a building is (5) Not Evaluated, then steps must be taken to evaluate the building for its eligibility on the National Register of Historic Places. If the Historic Status of a building is (6) Evaluated, Not Historic, then the building is not subject to the Guidance for Historic Buildings column.</p>	<p>For historic buildings, rehabilitation is equivalent to renovation. For a definition of rehabilitation and more information on proper rehabilitation techniques for historic buildings and historic building materials, refer to the Secretary of the Interior's Standards for Rehabilitation With Guidelines for Rehabilitating Historic Buildings: http://www.nps.gov/history/hps/tps/tax/rhb/stand.htm</p> <p>For basic guidance on defining the character of a historic building, refer to Preservation Brief 17 - Architectural Character - Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character: http://www.nps.gov/history/hps/tps/briefs/brief17.htm For a topical index of preservation-related publications, please reference Technical Preservation Services' Publications and Online Materials: http://www.nps.gov/history/hps/tps/topics/index.htm</p>	<p>This column outlines key preservation concerns and requirements for historic buildings. See <i>Definitions for the Guidance for Historic Buildings Checklist and Other Pertinent Information Relating to Historic Buildings</i> on the Historic Building Definitions tab for additional guidance.</p> <p>For each Guiding Principle and subtopic that applies to historic buildings, the key question to keep in mind is, "Will the proposed changes maintain the historic character and integrity of the building?" If yes, continue on to the next checklist question. If no, evaluate whether proposed changes can be modified using the guidance provided so that the changes to the historic character and integrity of the building are minimized.</p>
<p>I. Employ Integrated Design Principles</p>			
<p>Integrated Design: Use a collaborative, integrated planning and design process</p>			
<p>Does the project manager maintain an integrated project team as described on the Whole Building Design Guide <http://www.wbdg.org/design/engage_process.php> in all stages of a project's planning and delivery?</p>	<p>Keep records of meeting minutes, regularly updated membership lists, etc.</p>	<p>An integrated project team typically includes a sustainable building design professional, such as a LEED accredited professional, in addition to the architect, project manager, engineer, etc.</p>	<p>If an "historic building" is rehabilitated, does the integrated project team include a professional from the field of architectural history or historic architecture? See the <i>Secretary of the Interior's Standards and Guidelines, Professional Qualification Standards</i> for guidance: http://www.nps.gov/history/local-law/arch_stnds_9.htm</p> <p>For additional guidance, see <i>Whole Building Design Guide, Historic Preservation</i>: http://www.wbdg.org/design/historic_pres.php and General Services Administration's website, <i>Historic Preservation Technical Procedures</i>: http://w3.gsa.gov/web/p/hptp.nsf?OpenDatabase.</p>

	Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
Integrated Design	Does the project team integrate the use of OMB's A-11, Section 7, Exhibit 300: Capital Asset Plan and Business Case Summary?	<p>All DOI building projects with a gross construction cost with \$2 million or greater must complete a DOI business case review. Keep a copy of approval on file.</p> <p>All DOI building projects with a gross construction cost with \$10 million or greater must complete a OMB business case review. Keep a copy of approval on file.</p>	<p>OMB's A-11 Section 7, Exhibit 300: Capital Asset Plan and Business Case Summary http://www.whitehouse.gov/omb/assets/omb/circulars/a11/current_year/s300.pdf</p> <p>DOI Capital Planning and Investment Control (CPIC) Guide http://www.doi.gov/pam/CPICguide62107.pdf</p>	Are historic features respected if modified by a building or facilities manager? Historic features must be retained and repaired rather than replaced whenever possible. If a feature is deteriorated beyond repair, it must be replaced in kind with like materials that match the original in design, color, texture, and other visual qualities.
	Does the project team establish performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals and ensure incorporation of these goals throughout the design and lifecycle of the project?	<p>Document development of performance goals for energy, water, material use and recycling, and indoor environmental quality, that will comply with the GPs for new construction and major renovation projects.</p> <p>Document these goals in the construction plan.</p>	Project team guidance on the Whole Building Design Guide website (WBDG), Project Planning, Management and Delivery http://www.wbdg.org/project/pm.php	Do performance goals include provisions for the protection of character-defining features of historic buildings? Goals for sustainability must take advantage of inherent sustainable features of historic buildings [e.g., thick masonry walls with a high thermal mass, large historic windows with day lighting and viewing opportunities, operable windows for indoor air quality]. These characteristics enhance and improve the performance of the building and must be taken into consideration.
		Document project team consideration of all stages of the project's lifecycle, including deconstruction.	WBDG Project Planning & Development http://www.wbdg.org/project/planningdevelopment.php	<p>Is there a preservation-related section in the site-specific asset business plan? These business plans must include a historic building's character-defining features, which must be integrated and protected in the rehabilitation process.</p> <p>To better protect the historic resource, will the tenants and the maintenance staff be educated in the sensitive treatment of historic features? A preservation professional team member (preservation architect, architectural historian, preservation consultant) must be consulted in this process. Referencing on-line resources is recommended, such as the <i>Whole Building Design Guide, Historic Preservation</i>: http://www.wbdg.org/design/historic_pres.php and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i>: http://www.nps.gov/history/hps/tps/standards/index.htm</p>

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<p>Commissioning</p> <p>Does the project employ commissioning practices tailored to the size and complexity of the project and its system components in order to verify performance of building components and systems and help ensure that design requirements are met?</p> <p>Commissioning practices should include an experienced commissioning provider, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report. The Department of the Interior strongly recommends that project managers require blower door tests during and after construction to verify performance against a predetermined maximum acceptable leakage rate.</p>	<p>Document commissioning practices to verify performance of building components and systems and help ensure that design requirements are met.</p> <p>Document contract with an experienced commissioning provider, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.</p>	<p>WBDG commissioning guidance: http://www.wbdg.org/project/buildingcomm.php</p>	<p>Are the commissioning agent and commissioning process sensitive to the historic building and its features and finishes? For more information on appropriate treatments for historic buildings, see <i>Whole Building Design Guide, Historic Preservation</i>: http://www.wbdg.org/design/historic_pres.php and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i>: http://www.nps.gov/history/hps/tps/standards/index.htm</p>
II. Optimize Energy Performance			
Energy Efficiency			
<p>Does the project establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the ENERGY STAR® targets for new construction and major renovation where applicable?</p> <p>For new construction, reduce the energy use by 30 percent compared to the baseline building performance rating per the American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE)/Illuminating Engineering Society of North America (IESNA) Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential.</p> <p>For major renovations, reduce the energy use by 20 percent below pre-renovations 2003 baseline. Laboratory spaces may use the Labs21 Laboratory</p>	<p>Use the Energy Star for buildings tool available at: https://www.energystar.gov/istar/pmpam</p> <p>Or, use the Labs21 tool available on-line at: http://labs21.lbl.gov/</p> <p>Please note: Draft DOI Energy policy requires that all new building projects must include electricity meters.</p> <p>It is recommended you keep the utility meter serial numbers on file in case of compliance audit.</p> <p>Document requisitions for ENERGY STAR® and FEMP-designated Energy Efficient Products, where available.</p> <p>Note: EPA Act 2005 and 10 CFR 433, 434, 435 require compliance with ASHRAE 90.1-2004.</p>	<p>Energy Star for buildings program: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfolio/manager#rate</p> <p>Labs21 tool http://labs21.lbl.gov/</p> <p>Energy Star products: http://www.energystar.gov/</p> <p>FEMP-designated Energy Efficient products: http://www1.eere.energy.gov/femp/procurement/index.html</p> <p>DOI Affirmative Procurement Plan, section 2.4.2: http://www.doi.gov/greening/procurement/GPP.pdf</p>	<p>Do changes proposed for enhanced energy performance meet the <i>Secretary of the Interior's Standards for Rehabilitation</i>? The project team must ensure these changes respect historic materials and the overall character of the building and its site. Please reference the <i>Secretary of the Interior's Standards</i>: http://www.nps.gov/history/hps/tps/tax/rehabstandards.htm</p> <p>Do energy models of the building take into account the original green/sustainable features already in place in the historic building when performing calculations?</p> <p>Does the rehabilitated building use low-impact methods to enhance energy efficiency? Older buildings were commonly designed to maximize energy efficiency. This was accomplished by: intentional siting of the building to take advantage of prevailing winds; incorporating large, operable windows for daylighting and ventilation; using storm windows for insulation; installing awnings for shade; using weather stripping to eliminate air infiltration; and insulating attics, basements, and other secondary areas. These features must be retained and repaired rather than replaced with modern equipment. If new features are added on the interior or the exterior of a building, they must not be highly visible.</p>

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Energy Performance	Modeling Guidelines. Use ENERGY STAR® and FEMP-designated Energy Efficient Products, where available.			Are historic windows retained and repaired rather than replaced? Historic windows are character-defining features of historic buildings and their energy efficiency may be enhanced through the use of storm windows, weather stripping, and caulk. If original windows are deteriorated beyond repair, as demonstrated by sample repairs for example, new windows must match the old in design, color, texture, and, where possible, materials. If the original windows no longer exist and there is no physical evidence and/or pictorial documentation of the historic windows on which to base new designs, then new units must be compatible with the building's character. See the National Park Service guidance on windows, <i>Evaluating Historic Windows for Repair or Replacement</i> : http://www.nps.gov/history/hps/tps/tax/download/windows_evaluating.pdf , and <i>Replacement Windows That Meet the Standards</i> : http://www.nps.gov/history/hps/tps/tax/download/windows_replacement.pdf
	On-Site Renewable Energy: Per the Energy Independence and Security Act (EISA) Section 523, does the project meet at least 30% of the hot water demand through the installation of solar hot water heaters, when lifecycle cost effective?	Document calculations that show whether it is or is not lifecycle cost effective for the project to meet at least 30% of the hot water demand through the installation of solar hot water heaters. If so, document design for and construction of solar hot water heaters that meet 30% of hot water demand.	DOE explanation of solar hot water heaters: http://apps1.eere.energy.gov/cons/umer/your_home/water_heating/index.cfm/mytopic=12850	Will solar hot water heaters, tanks, or solar panels of any kind be installed in manners that respect the historic materials and the overall character of the building and site? For more information see <i>Whole Building Design Guide, Historic Preservation</i> : http://www.wbdg.org/design/historic_pres.php and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> : http://www.nps.gov/history/hps/tps/standards/index.htm
	Per Executive Order 13423, does the project implement renewable energy generation projects on agency property for agency use, when lifecycle cost effective?	If a facility has an onsite renewable energy system (RE), check yes. Document RE systems through maintenance logs, photographs, and installation requisitions. Submit project to DOI's renewable energy registry through your bureau energy manager. If not, explore feasibility for on-site renewable energy system, and provide an explanation.	Onsite RE systems can include photovoltaic systems, geothermal, and wind. For instance, San Andreas National Wildlife Refuge has several RE systems on-site: http://www.doi.gov/greening/awards/2008/2008_hybrid.html	Are wind turbines, solar panels, geothermal systems, or any other renewable energy systems installed in manners that respect historic materials and the overall character of the building and site? If renewable energy systems are placed on the roof, they must be located so they are not highly visible from the public right of way. If systems are located on building grounds, they must be sensitive to the landscape or any possible archeological sites. For more information see <i>Whole Building Design Guide, Historic Preservation</i> : http://www.wbdg.org/design/historic_pres.php and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> : http://www.nps.gov/history/hps/tps/standards/index.htm

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<p>Measurement and Verification:</p> <p>Per the Energy Policy Act of 2005 (EPAct) Section 103, does the project install building level electricity meters in new major construction and renovation projects to track and continuously optimize performance?</p> <p>Per EISA Section 434, does the project have equivalent meters for natural gas and steam, where natural gas and steam are used?</p>	<p>All new construction projects must be metered for electric use.</p> <p>If the building has an electricity meter, check yes. If not, check no.</p> <p>It is recommended you keep the utility meter serial number on file in case of compliance audit.</p> <p>If the building uses natural gas or steam is consumption for each metered? If so, check yes. If not, check no.</p> <p>It is recommended you keep the utility meter serial numbers on file in case of compliance audit.</p>	<p>DOI Energy Management Program information: http://www.doi.gov/pam/energy.html</p> <p>DOI Energy Management Program information: http://www.doi.gov/pam/energy.html</p>	<p>Are energy meters installed so they respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired)? Meters must be installed in secondary locations with minimal visibility and in places that do not detract from the character of the historic building.</p> <p>Are natural gas or steam meters installed to respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Meters must be installed in secondary locations with minimal visibility and in places that do not detract from the character of the historic buildings.</p>
<p>Benchmarking:</p> <p>Does the project compare actual performance data from the first year of operation with the energy design target, preferably by using ENERGY STAR® Portfolio Manager for building and space types covered by ENERGY STAR®.</p> <p>Verify that the project performance meets or exceeds the design target, or that actual energy use is within 10% of the design energy budget for all other building types. For other building and space types, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings.</p>	<p>Use the Energy Star for buildings tool to calculate rate. Tool available at: https://www.energystar.gov/istar/pmpam</p> <p>Or, use the Labs21 tool to calculate building rating. Tool available on-line at: http://labs21.lbl.gov/</p>	<p>WBDG technical guidance - Energy Efficiency: http://www.wbdg.org/references/mou_ee.php</p> <p>Energy Star Portfolio Manager provides energy summaries: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager#manage</p> <p>Add benchmarking to construction specifications and verify building compliance after construction completion, or during commissioning if possible.</p>	<p>No effect on historic building or historic character.</p>

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ty and Performance	III. Protect and Conserve Water			
	<p>Indoor Water:</p> <p>Does the project employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the project, after meeting the EPA 1992, Uniform Plumbing Codes 2006, and the International Plumbing Codes 2006 fixture performance requirements.</p> <p>The installation of water meters is encouraged to allow for the management of water use during occupancy. The use of harvested rainwater, treated wastewater, and air conditioner condensate should also be considered and used where feasible for nonpotable use and potable use where allowed.</p>	<p>Use Watery, LEED calculator, or water use modeling software in conjunction with data from the potable water utility to show the building reduced potable water use by 20%.</p> <p>When this guiding principle directly aligns with a LEED prerequisite, as it does in LEED's 2009 standard for NC/MR, then LEED certification can document compliance.</p>	<p>Use tools such as Watery, the LEED water calculator, the ENERGY STAR Portfolio Manager for water savings (or similar) to establish baseline usage and calculated savings or provide documentation based on metering/bills.</p> <p>Watery tools: http://www1.eere.energy.gov/femp/information/download_watery.html</p>	<p>Are water meters installed to respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Meters must be installed in secondary locations with minimal visibility and in places that do not detract from the character of the historic buildings.</p> <p>Are rainwater collection units located in secondary or tertiary locations on the site (with limited visibility), or within the building, so they respect historic materials and the overall character of the building and site? If located on the roof, units must be placed so they are not highly visible from the public right of way. Archeological sites must also be protected or avoided when placing E53below-ground rainwater collection units.</p>
	<p>Outdoor Water:</p> <p>Does the project use water efficient landscape and irrigation strategies, such as water reuse, recycling, and the use of harvested rainwater, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities)?</p> <p>The installation of water meters for locations with significant outdoor water use is encouraged.</p>	<p>Document a 50% reduction in potable water use for irrigation over conventional means of irrigation by using the Watery or similar tool.</p> <p>Keep the utility meter serial numbers on file in case of compliance audit.</p> <p>If the building recently had a submeter installed, the current water consumption can be compared to a calculated baseline.</p>	<p>Watery tools: http://www1.eere.energy.gov/femp/information/download_watery.html</p> <p>For example: Percentage Reduction of Outdoor Potable Water Use = (Baseline Outdoor Potable Water Use – Post-Project Outdoor Potable Water Use) ÷ Baseline Outdoor Potable Water Use x 100 Sample: (113,000 gal/yr – 42,000 gal/yr) ÷ 113,000 gal/yr x 100 = 62.8% Reduction of Outdoor Potable Water Use; therefore, this project/facility complies with EO 13423 outdoor potable water use goals.</p>	<p>Are significant landscape features, such as designed gardens or archeological sites, protected or avoided when irrigation systems are installed? With any important landscape, proper irrigation levels must be maintained so historic plantings are not damaged or destroyed. See the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes</i>: http://www.nps.gov/history/hps/hil/landscape_guidelines/index.htm</p> <p>Are rainwater collection units located in secondary or tertiary locations on the site (with limited visibility), or within the building, so they respect historic materials and the overall character of the property? If located on the roof, units must be placed so they are not highly visible from the public right of way. Archeological sites must also be protected or avoided when placing below-ground rainwater collection units.</p>

	Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
Water Quality	<p>Were design and construction strategies that reduce storm water runoff and discharges of polluted water offsite employed?</p> <p>Per EISA Section 438, to the maximum extent technically feasible, maintain or restore the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow using site planning, design, construction, and maintenance strategies.</p>	<p>Document that design and construction strategies reduce storm water runoff and discharges of polluted water offsite. For example, photograph design and construction strategies and include explanations.</p>	<p>WBDG Rainwater Harvesting Model Contract and Specification Language: http://www.wbdg.org/references/mou_ow.php</p> <p>EPA storm water management program: http://www.epa.gov/greeningepa/stormwater/index.htm</p>	<p>Are significant landscape features, such as designed gardens or archeological sites, protected or avoided when irrigation systems are installed? With any important landscape, proper irrigation levels must be maintained so historic plantings are not damaged or destroyed. See the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes</i>: http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm</p>
	<p>Process Water:</p> <p>Per the Energy Policy Act of 2005 Section 109, when potable water is used to improve a building's energy efficiency, were lifecycle cost effective water conservation measures deployed?</p>	<p>Document lifecycle cost effective water conservation calculations.</p>	<p>For example, energy efficient chillers "make" water from humidity in the air: http://www1.eere.energy.gov/femp/procurement/eep_wc_chillers.htm #retrofitsCase study EPA R7 office: http://www.epa.gov/greeningepa/facilities/kansascity-hq.htm</p> <p>Case study: Veterans Affairs Hospital http://www1.eere.energy.gov/femp/water/water_va_portland.html</p>	<p>No apparent negative effects on historic buildings.</p>
	<p>Water-Efficient Products:</p> <p>Where available, does the project use EPA's WaterSense-labeled products or other water conserving products?</p> <p>Choose irrigation contractors who are certified through a WaterSense labeled program.</p>	<p>Document requisitions with specification sheet for WaterSense-labeled or other water conserving products in project files.</p> <p>Document request for proposals that provide preference for contractors who are certified through a WaterSense labeled program.</p>	<p>EPA WaterSense program: http://epa.gov/watersense/pubs/label.htm</p>	<p>Are new water efficient products installed and utilized in manners that respect the historic building and its site?</p> <p>Are irrigation contractors properly trained to identify significant features on site? These features must be protected when new irrigation equipment is installed. The preservation professional must be consulted when new equipment is considered that might adversely impact the historic landscape or any significant archeological sites.</p>

Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
IV. Enhance Indoor Environmental Quality			
Ventilation and Thermal Comfort:			
Does the project meet ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality?	Document project designs and construction requisitions that comply with ASHRAE Standards 55-2004 and 62.1-2007.	WBDG Technical Guidance - Ventilation and Thermal Comfort: http://www.wbdg.org/references/mou_vtcomfort.php	Are new mechanical systems installed in manners that respect historic materials and the overall character of the building and site? To lessen the impact on a building's interior, new systems must be installed in secondary or utilitarian spaces, or in non-historic additions. Ductwork must be installed so ceiling heights are maintained (not lowered) in historically significant spaces, including corridors. It must also be located so it does not adversely impact spaces by falling in front of windows or below window heads. Care must be taken to avoid installing new systems that intersect or subdivide important spaces in insensitive ways. If new mechanical equipment is placed on the exterior of the building, it must be located in secondary spaces with limited visibility that does not negatively impact the landscape.
			Are proper levels of moisture and humidity maintained to protect historic materials, interior finishes, and, when applicable, museum collections? Appropriate levels of moisture and humidity must be kept in historic buildings. To lessen the impact on a building's interior, new systems must be installed in secondary or utilitarian spaces, or in non-historic additions. Guidance from the Smithsonian Institution, "Determining the Acceptable Ranges of Relative Humidity and Temperature in Museums and Galleries" states, "it is acceptable to be within a RH and temperature box bounded between 37% RH and 53% RH and 66 F and 74 F." http://www.si.edu/mci/downloads/reports/Mecklenburg-Part1-RH.pdf See also Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings: http://www.nps.gov/history/hps/tps/briefs/brief39.thm , for more information on moisture control in historic buildings.

Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
<p>Moisture Control:</p> <p>Does the project establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks related to moisture?</p>	<p>Document project designs and construction requisitions that comply with a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks related to moisture.</p>	<p>Preventive design features include:</p> <p>(a) maintaining design interior relative humidity at an appropriate level (e.g., between 30% and 50%);</p> <p>(b) controlling temperatures by heating or cooling the condensing surface (i.e., the outer-facing interior wall in cooling-load climates and the inner-facing exterior wall in heating-load climates); and</p> <p>(c) cleaning all HVAC drip pans regularly and thoroughly.</p> <p>WBDG Mold and Moisture Dynamics http://www.wbdg.org/resources/moisturedynamics.php</p> <p>Moisture Control Handbook Principles and Practices for Residential and Small Commercial Buildings, by Lstiburek and Carmody.</p>	<p>Are proper levels of moisture and humidity maintained to protect historic materials, interior finishes, and, when applicable, museum collections? Appropriate levels of moisture and humidity must be kept in historic buildings. To lessen the impact on a building's interior, new systems must be installed in secondary or utilitarian spaces, or in non-historic additions. Guidance from the Smithsonian Institution, "Determining the Acceptable Ranges of Relative Humidity and Temperature in Museums and Galleries" states, "it is acceptable to be within a RH and temperature box bounded between 37% RH and 53% RH and 66 F and 74 F." http://www.si.edu/mci/downloads/reports/Mecklenburg-Part1-RH.pdf</p> <p>For more information on moisture control in historic buildings, see <i>Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings</i>: http://www.nps.gov/history/hps/tps/briefs/brief39.htm</p>

	Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
Indoor Environmental Quality	<p>Daylighting and Lighting Controls:</p> <p>Does the project achieve a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks?</p> <p>Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.</p>	<p>Document project design and construction to ensure the building achieves a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks.</p>	<p>To verify, take a copy of floor plan and document location of automated lighting controls.</p> <p>Need 50 foot candles at desk height. 2% of 50 foot candles is 1 foot candle of light.</p> <p>Take a copy of floor plan and document location of light readings.</p> <p>Take a copy of floor plan and document location of accessible occupant controlled lighting.</p>	<p>Will changes to the historic building's window configuration, size, and shape be avoided to enhance the daylight factor or to upgrade energy efficiency? To meet the Secretary's Standards and to retain a building's historic integrity, historic windows must be retained and repaired rather than replaced, whenever possible. Energy efficiency can also be enhanced through the use of storm windows, weather stripping, and caulk. If windows are deteriorated beyond repair, new windows must match the old in design, color, texture, and, where possible, materials. If the original windows no longer exist and there is no physical evidence and/or pictorial documentation of the historic windows on which to base the new design, then new units must be compatible with the building's character. See NPS guidance on windows - <i>Evaluating Historic Windows for Repair or Replacement</i>: http://www.nps.gov/history/hps/tps/tax/download/windows_evaluating.pdf, and <i>Replacement Windows That Meet the Standards</i>: http://www.nps.gov/history/hps/tps/tax/download/windows_replacement.pdf</p>
				<p>Are lighting fixtures historic? If yes, they should be retained and repaired rather than replaced. Any new lighting fixtures must respect historic materials and the overall character of the building and site. If fixtures are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired).</p> <p>If exterior sun shades or light shelves are used, will they be placed on secondary, rather than primary, elevations? Modern features such as sun shades and light shelves must not be placed on primary elevations. If awnings and other passive solar features exist (that were installed to control heat gain and glare, etc.), they must be retained and repaired rather than replaced with modern features.</p>

Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
<p>Low-Emitting Materials:</p> <p>Does the project use materials and products with low pollutant emissions, including composite wood products, adhesives, sealants, interior paints and finishes, carpet systems, and furnishings.</p>	<p>Document project designs and construction requisitions that comply with the low pollutant emitting materials purchasing requirements of EO 13423, develop corrective action plans to address shortcomings, and conduct training on green purchasing requirements and alternatives for low pollutant emitting materials.</p> <p>Document that contracts specify purchase of low pollutant emitting materials, durable goods, consumables, renovations, repairs, and for green cleaning. In particular capture language that references VOC limits and Green Seal products.</p>	<p>Review DOI or bureau affirmative/green procurement plans.</p> <p>Establish contracts with specification language for the purchase of low pollutant emitting materials, durable goods, consumables, renovations, repairs, and for green cleaning. Ensure that language is explicit, such as VOC limits and Green Seal requirements are clearly specified.</p>	<p>Does the installation of new low pollutant emitting materials respect historic materials and the overall character of the building and site? The character of the historic building must be retained despite the use of any low pollutant emitting materials.</p>
<p>Protect Indoor Air Quality During Construction:</p> <p>Does the project follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 2007?</p> <p>After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent.</p> <p>After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.</p>	<p>Keep log that shows readings for minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent.</p>		<p>Do flush-out procedures ensure the protection of historic features and interior finishes? Measures must be taken to protect historic fabric affected by these procedures.</p>
<p>Environmental Tobacco Smoke Control:</p> <p>Did the project implement a policy and post signage indicating that smoking is prohibited within the project and within 25 feet of all building entrances, operable windows, and building ventilation intakes during building occupancy?</p>	<p>Keep copies of policies and photos of signage to prohibit smoking areas less than 25 feet away from all building entrances, operable windows, and building ventilation intakes.</p>		<p>Will signage be sensitively installed so it does not damage historic building materials or detract from its character-defining features? If signs are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired).</p>

Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
V. Reduce Environmental Impact of Materials			
<p>Recycled Content:</p> <p>Per Section 6002 of the Resource Conservation and Recovery Act (RCRA), for EPA-designated products, does project specify products meeting or exceeding EPA's recycled content recommendations?</p> <p>For other products, does project specify materials with recycled content when practicable?</p> <p>If EPA-designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the project.</p>	<p>Document project designs and construction requisitions that comply with requirements to purchase EPA-designated products. Include requirements in all solicitations relevant to construction. For example keep on file contract clauses, product specifications, and product requisitions.</p>	<p>EPA's recycled content product designations and recycled content recommendations are available on EPA's Comprehensive Procurement Guideline web site at <www.epa.gov/cpg>.</p> <p>Office of the Federal Environmental Executive green purchasing resources: http://www.ofee.gov/gp/gp.asp</p> <p>Database of Environment Information for Products and Services http://yosemite1.epa.gov/oppt/eppstand2.nsf/Pages/Search.html?Open</p> <p>Earth 911 has list of environmentally preferable products www.earth911.org</p>	<p>Will the removal and replacement of important historic features and interior and exterior finishes be avoided for the sole intent of installing new materials with a higher degree of recycled content? Care must be taken to retain and repair existing historic materials in place.</p>

	Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
Materials Selection	<p>Biobased Content:</p> <p>Per Section 9002 of the Farm Security and Rural Investment Act (FSRIA), for USDA-designated products, does project specify products with the highest content level per USDA's biobased content recommendations. For other products, specify biobased products made from rapidly renewable resources and certified sustainable wood products?</p> <p>If these designated products meet performance requirements and are available at a reasonable cost, provide a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the project.</p>	<p>Document project designs and construction requisitions that comply with purchase of biopreferred products are included in solicitations relevant to construction. For example keep on file contract clauses, product specifications, and product requisitions.</p>	<p>USDA's biobased product designations and biobased content recommendations are available on USDA's BioPreferred web site at <www.usda.gov/biopreferred>.</p> <p>Catalog of Biopreferred Products http://www.biopreferred.gov/Catalog.aspx</p>	<p>Will the removal and replacement of important historic features and interior and exterior finishes be avoided for the sole intent of installing new materials with a higher degree of recycled content? Care must be taken to retain and repair existing historic materials in place.</p>
	<p>Environmentally Preferable Products:</p> <p>Does project use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared with competing products or services that serve the same purpose.</p> <p>A number of standards and ecolabels are available in the marketplace to assist specifiers in making environmentally preferable decisions. For recommendations, consult the Federal Green Construction Guide for Specifiers at <www.wbdg.org/design/greenspec.php>.</p>	<p>Document project designs and construction requisitions that comply with purchase requirements for products that have a lesser or reduced effect on human health and the environment is included in all solicitations relevant to construction, operation, maintenance of or use in the building. For example, keep on file contract clauses, product specifications, and product requisitions.</p>	<p>For recommendations for operations and maintenance consult third-party certified ecolabel such as Green Seal, online at: http://greenseal.org/.</p> <p>Review DOI or bureau affirmative/green procurement plan. Products examples are available at the EPA EPP http://www.epa.gov/epp/pubs/products/index.htm</p>	<p>Will the use of cleaning products be used that maintain historic finishes or features without damaging or destroying them in the process? The gentlest possible means must be used to protect historic fabric when these cleaning products or techniques are employed.</p>

Compliance with Guiding Principles (GP) for NC/MR Projects (after completion of construction)	Examples: How to Document Compliance	Examples: How to Make Progress Toward Compliance	Guidance for Renovations of Historic Buildings (Required for Buildings listed in or eligible for the National Register of Historic Places, and National Historic Landmarks)
<p>Waste and Materials Management:</p> <p>Does project incorporate adequate space, equipment, and transport accommodations for recycling in the project design.</p> <p>During a project's planning stage, identify local recycling and salvage operations that could process site-related construction and demolition materials.</p> <p>During construction, recycle or salvage at least 50 percent of the non-hazardous construction, demolition and land clearing materials, excluding soil, where markets or onsite recycling opportunities exist.</p> <p>Provide salvage, reuse and recycling services for waste generated from major renovations, where markets or onsite recycling opportunities exist.</p>	<p>Document market research to identify recycling and salvage operations that could process the project's site-related construction and demolition materials.</p> <p>Document that the project has adequate space, equipment, and transport accommodations for recycling in the project design.</p> <p>Documentation may be in the form of certificates of recycling or contracts with local recycling and product reclaiming services.</p> <p>Documentation may include contract specifications for waste management services with on-site vendors (e.g. cafeteria service vendor).</p>	<p>Calculate the percentage of construction and demolition waste diverted from landfills and incineration facilities by conducting a waste characterization analysis.</p> <p>Note: construction and demolition waste can be generated from major renovations of existing buildings, or from new construction projects building on previously disturbed sites.</p>	<p>Will historic materials remain in place and not be removed, recycled, or salvaged for use in other projects? Reuse of an existing building is an inherent form of recycling.</p> <p>To ensure historic materials are preserved and protected, a preservation professional (preservation architect, architectural historian, preservation consultant) must be included in the integrated team when site demolition is proposed).</p> <p>Are on-site recycling facilities located in secondary, utilitarian, or industrial spaces so the historic character of the building and landscaping are not impacted? Care must be taken to protect historic fabric when recycling or other waste products are stored in historic buildings. Hazardous materials stored on site must not damage the historic building or its surroundings.</p>
<p>Ozone Depleting Compounds.</p> <p>Does project eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts.</p>	<p>Document zero use of CFC-products in your project design and construction contract language, project management logs, inspection logs, etc. If any CFC-products are located in the facility, document that a phase-out plan is in place.</p>	<p>Use all alternatives consistent with EPA's Significant New Alternatives Policy (SNAP) regulatory requirements. http://epa.gov/ozone/snap/lists/index.html Follow the provisions of the following: FAR 52.223-11 Ozone Depleting Substances, FAR 52.223-12 Refrigeration Equipment and Air conditioners. Do not purchase aerosols or foam products except for those permitted by 40 CFR part 82 subpart C. Do not use halons in fire suppression.</p>	<p>No apparent negative effects on historic buildings.</p>

U.S. Department of the Interior Sustainable Building Assessment and Compliance Tool Guiding Principles for Existing Buildings / Operations and Maintenance To be used during operations and maintenance. Checklist also serves as compliance assessment and verification form.		Meets (if grey, meet one option)	Does Not Meet	In Process (Provide Explanation)	Harms Historic Integrity	Explanation	Documents on file
Requirements	Name _____ Signature _____ Title _____ Date _____ Bureau _____ Location _____ Building FRPP ID # _____						
Integrated O&M	<p>Use an integrated team to develop and implement policy regarding sustainable operations and maintenance that: Incorporate sustainable operations and maintenance practices within the appropriate Environmental Management System (EMS),</p> <p>Assess existing condition and operational procedures of the building and major building systems and identify areas for improvement.</p> <p>Establish operational performance goals for energy, water, material use and recycling, and indoor environmental quality, and ensure incorporation of these goals throughout the remaining lifecycle of the building.</p> <p>Incorporate a building management plan to ensure that operating decisions and tenant education are carried out with regard to integrated, sustainable building operations and maintenance, and</p> <p>Augment building operations and maintenance as needed using occupant feedback on work space satisfaction.</p>						
	<p>Employ recommissioning, tailored to the size and complexity of the building and its system components, in order to optimize and verify performance of fundamental building systems.</p> <p>Commissioning must be performed by an experienced commissioning provider.</p> <p>The commissioning report, summary of actions taken, and schedule for recommissioning must be documented.</p> <p>Meet the requirements of EISA 2007, Section 432 and associated FEMP guidance.</p> <p>Building recommissioning must have been performed within four years prior to reporting a building as meeting the Guiding Principles.</p>						
Energy Performance	<p>Three options can be used to measure energy efficiency performance:</p> <p>OPTION 1: Receive an ENERGY STAR® rating of 75 or higher or an equivalent Labs21 Benchmarking Tool score for laboratory buildings,</p> <p>OPTION 2: Reduce measured building energy use by 20% compared to building energy use in 2003 baseline or a year thereafter with quality energy use data, or</p> <p>OPTION 3: Reduce energy use by 20% compared to the ASHRAE 90.1-2007 baseline building design if design information is available.</p> <p>Use ENERGY STAR® and FEMP-designated Energy Efficient Products, where available.</p>						
	<p>On-Site Renewable Energy</p> <p>Per Executive Order 13423, implement renewable energy generation projects on agency property for agency use, when lifecycle cost effective.</p>						
	<p>Measurement and Verification</p> <p>Per the Energy Policy Act of 2005 (EPAct2005) Section 103, install building level electricity meters to track and continuously optimize performance. If your building pays less than \$40,000 in annual electricity costs, check N/A.</p> <p>Per the Energy Independence and Security Act (EISA) 2007, the include natural gas and steam meters, where natural gas and steam are used. If not, check no. If your building pays less than \$40,000 in annual natural gas and steam costs, check N/A.</p>						
	<p>Benchmarking</p> <p>Compare annual performance data with previous years' performance data, preferably by entering annual performance data into the ENERGY STAR® Portfolio Manager. For building and space types not available in ENERGY STAR®, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings.</p>						
Water Quality and Performance	<p>Two options can be used to measure indoor potable water use performance:</p> <p>OPTION 1: Reduce potable water use by 20% compared to a water baseline calculated for the building. The water baseline, for buildings with plumbing fixtures installed in 1994 or later, is 120% of the Uniform Plumbing Codes 2006 or the International Plumbing Codes 2006 fixture performance requirements. The water baseline for plumbing fixtures older than 1994 is 160% of the Uniform Plumbing Codes 2006 or the International Plumbing Codes 2006 fixture performance requirements, or</p> <p>OPTION 2: Reduce building measured potable water use by 20% compared to building water use in 2003 baseline or a year there after with quality water data.</p>						
	<p>Outdoor Water</p> <p>Three options can be used to measure outdoor potable water use performance:</p> <p>OPTION 1: Reduce potable irrigation water use by 50% compared to conventional methods,</p> <p>OPTION 2: Reduce building related potable irrigation water use by 50% compared to measured irrigation water use in 2003 baseline or a year there after with quality water data, or</p> <p>OPTION 3: Use no potable irrigation water.</p>						
	<p>Measurement and Verification</p> <p>Employ strategies that reduce storm water runoff and discharges of polluted water offsite. Per EISA Section 438, where redevelopment affects site hydrology, use site planning, design, construction, and maintenance strategies to the maximum extent that is technically feasible to:</p> <p>Alternative 1 - Maintain hydrologic conditions during development</p> <p>Alternative 2 - Restore hydrologic conditions following development</p> <p>The installation of water meters for building sites with significant indoor and outdoor water use is encouraged. If only one meter is installed, reduce potable water use (indoor and outdoor combined) by at least 20% compared to building water use in 2003 or a year thereafter with quality water data.</p>						
	<p>Process Water</p> <p>Per EPAct 2005 Section 109, when potable water is used to improve a building's energy efficiency, deploy lifecycle cost effective water conservation measures.</p>						
	<p>Water-Efficient Products</p> <p>Where available, use EPA's WaterSense-labeled products or other water conserving products.</p> <p>Choose irrigation contractors who are certified through a WaterSense-labeled program.</p>						

U.S. Department of the Interior Sustainable Building Assessment and Compliance Tool Guiding Principles for Existing Buildings / Operations and Maintenance To be used during operations and maintenance. Checklist also serves as compliance assessment and verification form.		Meets (if grey, meet one option)	Does Not Meet	In Process (Provide Explanation)	Harms Historic Integrity	Explanation	Documents on file
Requirements							
Name _____ Signature _____ Title _____ Date _____ Bureau _____ Location _____ Building FRPP ID # _____							
Indoor Environmental Quality	Ventilation and Thermal Comfort	Meet ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy					
		Meet ASHRAE Standard 62.1-2007: Ventilation for Acceptable Indoor Air Quality					
	Moisture Control	Provide policy and illustrate the use of an appropriate moisture control strategy to prevent building damage, minimize mold contamination, and reduce health risks related to moisture. For façade renovations, Dew Point analysis and a plan for cleanup or infiltration of moisture into building materials are required					
	Daylighting	Automated lighting controls (occupancy/vacancy sensors with manual-off capability) are provided for appropriate spaces including restrooms, conference and meeting rooms, employee lunch and break rooms, training classrooms, and offices. Two options can be used to meet additional daylighting and lighting controls performance expectations: OPTION 1: Achieve a minimum daylight factor of 2% (excluding all direct sunlight penetration) in 50% of all space occupied for critical visual tasks, or OPTION 2: Provide occupant controlled lighting, allowing adjustments to suit individual task needs, for 50% of regularly occupied spaces.					
	Low-Emitting Materials	Use low emitting materials for building modifications, maintenance, and cleaning . In particular, specify the following materials and products to have low pollutant emissions: composite wood products, adhesives, sealants, interior paints and finishes, solvents, carpet systems, janitorial supplies, and furnishings.					
	Integrated Pest Management	Use integrated pest management techniques as appropriate to minimize pesticide usage. Use EPA-registered pesticides only when needed.					
	Environmental Tobacco Smoke Control	Implement a policy and post signage indicating that: Prohibits smoking within the building, and Prohibits smoking within 25 ft of all building entrances, operable windows, and building ventilation intakes during building occupancy.					
Materials Selection	Recycled Content	Per section 6002 of RCRA, for EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations for building modifications, maintenance, and cleaning. If EPA-designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. For other products, use materials with recycled content such that the sum of postconsumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost or weight) of the total value of the materials in the project.					
	Biobased Content	Per section 9002 of FSRIA, for USDA-designated products, use products with the highest content level per USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources wood products. If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them should be included in all solicitations relevant to construction, operation, maintenance of or use in the building. For other products, use biobased products made from certified sustainable wood products. If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them should be included in all solicitations relevant to construction, operation, maintenance of or use in the building.					
	Environmentally Preferable Products	Use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared with competing products or services that serve the same purpose. A number of standards and ecolabels are available in the marketplace to assist specifiers in making environmentally preferable decisions.					
	Waste and Materials Management	Provide reuse and recycling services for building occupants, where markets or on-site recycling exist. Provide salvage, reuse and recycling services for waste generated from building operations, maintenance, repair and minor renovations, and discarded furnishings, equipment and property. This could include such things as beverage containers and paper from building occupants, batteries, toner cartridges, outdated computers from an equipment update, and construction materials from a minor renovation.					
	Ozone Depleting Compounds	Eliminate the use of ozone depleting compounds where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts.					

**U.S. Department of the Interior Sustainable Building Assessment and Compliance Tool
EXISTING BUILDINGS (EB) / OPERATIONS and MAINTENANCE GUIDANCE**

Compliance with Guiding Principles (GP) for Existing Buildings (EB)	Examples: How to Document Compliance with this GP	Examples: How to Make Progress Toward Compliance with this GP	Guidance for Historic Buildings (Required for Buildings listed on or eligible for the National Register of Historic Places, and National Historic Landmarks)
Is the building historic? Is it eligible for or listed in the National Register of Historic Places or is it a National Historic Landmark?	See Historic Status field in the Federal Real Property Profile (FRPP). If the Historic Status of a building is (1) National Historic Landmark (NHL), (2) National Register Listed (NRL), or (3) National Register Eligible (NRE), all considerations in the "Guidance for Historic Buildings" column must be followed. External modifications to (4) Non-contributing Element of NHL/NRL District should be reviewed for potential adverse impacts to the historic character of the district. If the Historic Status of a building is (5) Not Evaluated, then steps must be taken to evaluate the building for its eligibility in the National Register of Historic Places. If the Historic Status of a building is (6) Evaluated, Not Historic, then the building is not subject to the Guidance for Historic Buildings column.	For more information on proper rehabilitation techniques for historic buildings and historic building materials, refer to the Secretary of the Interior's Standards for Rehabilitation With Guidelines for Rehabilitating Historic Buildings: http://www.nps.gov/history/hps/tps/tax/rhb/stand.htm For a topical index of preservation-related publications, refer to Technical Preservation Services' Publications and Online Materials: http://www.nps.gov/history/hps/tps/topics/index.htm	This column outlines key preservation concerns and requirements for historic buildings. See <i>Definitions for the Guidance for Historic Buildings Checklist and Other Pertinent Information Relating to Historic Buildings</i> on the Historic Buildings Defs tab. For each Guiding Principle and subtopic that applies to historic buildings, the key question to keep in mind is, "Will the proposed changes maintain the historic character and integrity of the building?" If yes, continue on to the next checklist question. If no, evaluate whether proposed changes can be modified using the guidance provided so that the changes to the historic character and integrity of the building are minimized. For basic guidance on defining the character of a historic building, refer to <i>Preservation Brief 17 - Architectural Character - Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character</i> : http://www.nps.gov/history/hps/tps/briefs/brief17.htm

I. Employ Integrated Assessment, Operation, and Management Principles

Integrated Assessment, Operation, and Management:			
Use an integrated team to develop and implement policy regarding sustainable operations and maintenance.			
Does the building manager incorporate sustainable operations and maintenance practices within the appropriate Environmental Management System (EMS)?	Ensure the sustainable practices in the building operating plan meet these GPs for Ebs and are shared and coordinated with the appropriate EMS manager for your facility.	EMS team includes facility management staff. EMS goal setting training: http://www.ofee.gov/ems/training/intro_training/14EMStrainingOT.ppt DOI example of integrated EMS and O&M goals/accomplishments (though not updated yet for these new GPs): http://www.doi.gov/greening/awards/2007/2007_mission.html	Does the EMS team include a professional from the field of architectural history or historic architecture? This is required to ensure sustainable practices recommended in the building operating plan meet the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> : http://www.nps.gov/history/hps/tps/standards/index.htm Also see the <i>Secretary of the Interior's Standards and Guidelines, Professional Qualification Standards</i> : http://www.nps.gov/history/local-law/arch_stnds_9.htm . For additional guidance, see the <i>Whole Building Design Guide, Historic Preservation</i> section: http://www.wbdg.org/design/historic_pres.php

	Compliance with Guiding Principles (GP) for Existing Buildings (EB)	Examples: How to Document Compliance with this GP	Examples: How to Make Progress Toward Compliance with this GP	Guidance for Historic Buildings (Required for Buildings listed on or eligible for the National Register of Historic Places, and National Historic Landmarks)
Integrated O&M	Does the building manager assess existing condition and operational procedures of the building and major building systems and identify areas for improvement?	<p>Document building mechanic tour logs that show identification of areas for improvement in complying with these GPs.</p> <p>Document regular meetings of the facility EMS team and the building management staff. Show coordination and mutual goal setting.</p>	<p>Mechanic tour log can be kept on the GSA 3423 inspection form. http://www.usa-federal-forms.com/usa-fedforms-gsa-gsa/gsa-3423-nonfillable.pdf</p> <p>DOI Case Study FWS NE Regional Office (though not updated yet for these new GPs): http://www.doi.gov/greening/awards/2006/2006_NorthEast.html</p> <p>Sustainable O&M practices overview: http://www.wbdg.org/resources/sustainableom.php?rom</p>	Are historic features respected if modified by a building or facilities manager? Historic features must be retained and repaired rather than replaced whenever possible. If a feature is deteriorated beyond repair, it must be replaced in kind with like materials that match the original in design, color, texture, and other visual qualities.
	Does the building manager establish operational performance goals for energy, water, material use and recycling, and indoor environmental quality, and ensure incorporation of these goals throughout the remaining lifecycle of the building?	Coordinate with facility EMS team to develop performance targets for energy, water, material use and recycling, and indoor environmental quality, as required by these GPs for EBs. Document that these goals are included in the building operation plan and practices as well as the facility EMS.	DOI example of integrated EMS and O&M goal setting: http://www.doi.gov/greening/awards/2007/2007_mission.html	Do performance goals include provisions for the protection of character-defining features of historic buildings? Goals for sustainability must take advantage of inherent sustainable features of historic buildings (e.g., thick masonry walls with a high thermal mass, large historic windows with daylighting and viewing opportunities, operable windows for indoor air quality). These characteristics enhance and improve the performance of a historic building and must be taken into consideration.
	Does the building management plan ensure that operating decisions and tenant education are carried out with regard to integrated, sustainable building operations and maintenance?	<p>Document in the building management plan / building operating plan that operating decisions include sustainable O&M practices per these GPs for EBs.</p> <p>Document in the building operating plan that tenant education includes information about the sustainable O&M practices in use at the building.</p>	<p>Building operating plan specifies method to meet the goals of these GPs. For example, integrate GPs goals into existing plans for energy curtailment, peak hours of operation, designated touring hours, etc.</p> <p>Add GPs goals to existing tenant education programs for emergency response and continuity of operation plans.</p> <p>Educate tenants through: meetings, bulletin boards, emails, signs, surveys, fliers, etc. as appropriate.</p>	<p>Is there a preservation-related section in the site-specific asset business plan? These business plans must include the historic building's character-defining features, which must be integrated and protected in the rehabilitation process.</p> <p>To better protect the historic resource, will the tenants and the maintenance staff be educated in the sensitive treatment of historic features? A preservation professional team member must be consulted in this process. Referencing on-line resources is recommended, such as the Whole Building Design Guide, Historic Preservation: http://www.wbdg.org/design/historic_pres.php and the Secretary of the Interior's Standards for the Treatment of Historic Properties: http://www.nps.gov/history/hps/tps/standards/index.htm</p>

Compliance with Guiding Principles (GP) for Existing Buildings (EB)	Examples: How to Document Compliance with this GP	Examples: How to Make Progress Toward Compliance with this GP	Guidance for Historic Buildings (Required for Buildings listed on or eligible for the National Register of Historic Places, and National Historic Landmarks)
Does the building manager augment building operations and maintenance as needed using occupant feedback on work space satisfaction?	<p>Document tenant/customer satisfaction surveys.</p> <p>Document service requests and resolutions.</p>	<p>Tenant surveys incorporate questions about HVAC, lighting, water fixture performance, and the other indicators of GPs goals.</p> <p>Keep service-call log with corrective actions on file. For example, use existing facility management and maintenance software.</p>	When occupant feedback indicates changes that may negatively impact historic features, will the building manager consult a preservation professional?
<p>Commissioning:B16</p> <p>Does the building employ recommissioning, tailored to the size and complexity of the building and its system components, in order to optimize and verify performance of fundamental building systems? Commissioning must be performed by an experienced commissioning provider. When building commissioning has been performed, the commissioning report, summary of actions taken, and schedule for recommissioning must be documented. In addition, meet the requirements of EISA 2007, Section 432 and associated FEMP guidance.</p>	<p>In accordance with section 432 of the Energy Independence and Security Act of 2007, buildings that have 50,000 square feet or greater, or 25,000 square feet or greater with energy intensive operations (data centers, health facilities, utility plants, etc.), must employ an experienced commissioning provider to re/retrocommission the building.</p> <p>If the building is less than 50,000 square feet and does not have energy intensive operations, it is generally not cost effective to re/retrocommission these facilities. Rather, the facility manager may work with O&M staff to conduct an in-house commissioning plan and list operating problems and identify operating improvements. The commissioning report should: identify that building systems are working according to specifications, address humidity control as appropriate, include an inspection-driven moisture prevention strategy that includes maintenance of the roof drainage and the foundation system, and highlight verification procedures, documentation and performance tests.</p>	<p>Commissioning guidance on the Whole Building Design Guide: http://www.wbdg.org/project/buildingcomm.php</p> <p>California Commissioning Collaborative Retrocommissioning Toolkit: http://www.cacx.org/resources/rcxtools/index.html</p>	<p>Are the commissioning agent and the commissioning process sensitive to the historic building and its features and finishes? For more information on appropriate treatments for historic buildings, see the <i>Whole Building Design Guide, Historic Preservation</i>: http://www.wbdg.org/design/historic_pres.php and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i>: http://www.nps.gov/history/hps/tps/standards/index.htm</p>
Has re/recommissioning been performed for the building within four years prior to reporting a building as meeting the <i>Guiding Principles</i> ?	If the building has been commissioned or re/retrocommissioned within four years prior to reporting the building as meeting these Guiding Principles, it does not need to be re/retrocommissioned.		

Compliance with Guiding Principles (GP) for Existing Buildings (EB)	Examples: How to Document Compliance with this GP	Examples: How to Make Progress Toward Compliance with this GP	Guidance for Historic Buildings (Required for Buildings listed on or eligible for the National Register of Historic Places, and National Historic Landmarks)
II. Optimize Energy Performance			
Optimize Energy Performance Energy Efficiency. Three options can be used to measure energy efficiency performance:			
<p>Option 1: Did the building receive an ENERGY STAR® rating of 75 or higher or an equivalent Labs21 Benchmarking Tool score for laboratory buildings?</p>	<p>Use the Energy Star for buildings tool to calculate rating. Tool available at: https://www.energystar.gov/istar/pmpam Document rating in the building manager's files.</p> <p>Or, use the Labs21 tool to calculate building rating. Tool available on-line at: http://labs21.lbl.gov/ Document rating in the building manager's files.</p>	<p>Conduct an energy audit which will identify energy conservation measures (ECMs) needed to meet the Energy Star rating of 75 or higher.</p> <p>Follow guidance in the ASHRAE Advanced Energy Design Guide for Small Office Buildings: www.ashrae.org/freeaedg</p> <p>Energy Star at work tips: http://www.energystar.gov/index.cfm?fuseaction=bygtw.showSplash</p> <p>Energy Star for buildings program: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfolio/manager#rate</p>	<p>Do changes proposed for enhanced energy performance meet the <i>Secretary of the Interior's Standards for Rehabilitation</i>: http://www.nps.gov/history/hps/tps/tax/rehabstandards.htm? The project team must ensure these changes respect historic materials and the overall character and integrity of the building and site.</p> <p>Do energy models take into account the original green/sustainable features already in place in the historic building when performing calculations?</p> <p>Older buildings were commonly designed to maximize energy efficiency. This was accomplished by: intentionally siting the building to take advantage of prevailing winds; incorporating large, operable windows for daylighting and ventilation; using storm windows for insulation; installing awnings for shade; using weather stripping to eliminate air infiltration; and, insulating attics, basements, and other secondary areas. The rehabilitated building must use low-impact methods such as these to enhance energy efficiency. These features must also be retained and repaired rather than replaced with modern equipment. Actions must be taken to avoid adding any new building features that are highly visible and negatively impact the historic character and integrity of the overall building.</p>
<p>Option 2: Does the building reduce measured building energy use by 20% compared to building energy use in 2003 or a year thereafter with quality energy use data?</p>	<p>If the building is metered, document a 20% reduction in energy consumption between a FY 2003 baseline and the current FY. If the building recently had a meter installed, then compare the current energy consumption to a calculated baseline for FY2003 or a year thereafter. If the building is not metered, the building cannot be considered to meet this option.</p>	<p>Use an O&M contract that includes an energy savings clause where O&M contractor gets a share of energy cost savings.</p> <p>Building managers should establish monthly review of energy utility bills to identify any energy consumption problems.</p> <p>Use energy efficient chillers: http://www1.eere.energy.gov/femp/procurement/eep_wc_chillers.html#retrofits</p> <p>Federal Energy Management Program: http://www1.eere.energy.gov/femp/</p>	<p>Do changes for enhanced energy performance meet the <i>Secretary of the Interior's Standards for Rehabilitation</i>: http://www.nps.gov/history/hps/tps/tax/rehabstandards.htm? The project team must ensure that changes for enhanced energy performance respect historic materials and the overall character and integrity of the building and site.</p> <p>Are energy meters installed in manners that respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Energy meters must be installed in secondary locations with minimal visibility that do not detract from the character of the building.</p>

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Energy Performance	Option 3: Does the building reduce energy use by 20% compared to the ASHRAE 90.1-2007 baseline building design if design information is available?	Use energy usage modeling software in conjunction with data from energy service providers to show the building reduced energy use by 20% compared to the ASHRAE 90.1-2007 baseline.	<p>Conduct an energy audit which will identify energy conservations measures (ECMs).</p> <p>Follow guidance in the ASHRAE Advanced Energy Design Guide for Small Office Buildings. www.ashrae.org/freeaedg</p> <p>Federal Energy Management Program tips: http://www1.eere.energy.gov/femp/</p>	<p>Do changes for enhanced energy performance meet the <i>Secretary of the Interior's Standards for Rehabilitation</i>: http://www.nps.gov/history/hps/tps/tax/rehabstandards.htm? The project team must ensure that changes for enhanced energy performance respect historic materials and the overall character of the building and site.</p> <p>Do energy models take into account the original green/sustainable features already in place in the historic building when performing calculations? Older buildings were commonly designed to maximize energy efficiency. This was accomplished by: intentionally siting the building to take advantage of prevailing winds; incorporating large, operable windows for daylighting and ventilation; using storm windows for insulation; installing awnings for shade; using weather stripping to eliminate air infiltration; and, insulating attics, basements, and other secondary areas. The rehabilitated building must use low-impact methods such as these to enhance energy efficiency. These features must also be retained and repaired rather than replaced with modern equipment. Actions must be taken to avoid adding any new features to buildings that are highly visible and negatively impact their historic character and integrity.</p>
	Does the facility manager use ENERGY STAR® and FEMP-designated Energy Efficient Products, where available?	Document requisitions for ENERGY STAR® and FEMP-designated Energy Efficient Products in the building manager's files.	<p>Energy efficient product lists at: http://www1.eere.energy.gov/femp/procurement/index.html</p> <p>DOI Affirmative Procurement Plan, section 2.4.2: http://www.doi.gov/greening/procurement/GPP.pdf</p>	<p>Do changes for enhanced energy performance meet the <i>Secretary of the Interior's Standards for Rehabilitation</i>? - http://www.nps.gov/history/hps/tps/tax/rehabstandards.htm? The project team must ensure that changes for enhanced energy performance respect historic materials and the overall character of the building and site.</p> <p>Older buildings were commonly designed to maximize energy efficiency. This was accomplished by: intentionally siting the building to take advantage of prevailing winds; incorporating large, operable windows for daylighting and ventilation; using storm windows for insulation; installing awnings for shade; using weather stripping to eliminate air infiltration; and, insulating attics, basements and other secondary areas. The rehabilitated building must use low-impact methods such as these to enhance energy efficiency. These features must also be retained and repaired rather than replaced with modern equipment. Actions must be taken to avoid adding any new features to buildings that are highly visible and negatively impact their historic character.</p>
	On-Site Renewable Energy:			

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	Per Executive Order 13423, does the facility manager implement renewable energy generation (RE) projects on agency property for agency use, when lifecycle cost effective?	If a facility has an onsite renewable energy system, check yes. Document RE systems through maintenance logs, photographs, and installation requisitions. Submit project to DOI's renewable energy registry through your bureau energy manager. If not, explore feasibility for on-site renewable energy system, check "Meets" and provide an explanation.	Onsite RE systems can include photovoltaic systems, geothermal, and wind. For instance, San Andreas National Wildlife Refuge has several RE systems on-site: http://www.doi.gov/greening/awards/2008/2008_hybrid.html	Will wind turbines, solar panels, geothermal systems, or any other renewable energy systems be installed in manners that respect historic materials and the overall character of the building and site? If renewable energy systems are placed on the roof, they must be located so they are not highly visible from a public right of way. If systems are located on building grounds, they must be sensitive to the landscape or possible archeological sites. For more information see <i>Whole Building Design Guide, Historic Preservation</i> : http://www.wbdg.org/design/historic_pres.php and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> : http://www.nps.gov/history/hps/tps/standards/index.htm

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<p>Measurement and Verification:</p> <p>Per the Energy Policy Act of 2005 (EPAAct2005) Section 103, does the facility management install building level electricity meters to track and continuously optimize performance?</p> <p>Per the Energy Independence and Security Act (EISA) 2007, does the building have utility meters for natural gas and steam, where natural gas and steam are used?</p>	<p>If the building has an electricity meter, check yes. If not, check no. If your building pays less than \$40,000 in annual electricity costs, check "Meets" and provide an explanation. Document that facility management has reviewed monthly utility bill and calculated annual electricity costs.</p> <p>It is recommended you keep the utility meter serial number on file in case of compliance audit.</p> <p>If the building uses natural gas or steam is consumption for each metered? If so, check yes. If not, check no. If your building pays less than \$40,000 in annual natural gas and steam costs, check N/A.</p> <p>It is recommended you keep the utility meter serial numbers on file in case of compliance audit.</p>	<p>DOI Energy Management Program information: http://www.doi.gov/pam/energy.html</p> <p>DOI Energy Management Program information: http://www.doi.gov/pam/energy.html</p>	<p>Are energy meters installed in manners that respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Energy meters must be installed in secondary locations with minimal visibility that do not detract from the character of the building.</p> <p>Are natural gas or steam meters installed in manners that respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Energy meters must be installed in secondary locations with minimal visibility that do not detract from the character of the building.</p>
<p>Benchmarking:</p> <p>Does the building manager compare annual performance data with previous years' performance data, preferably by entering annual performance data into the ENERGY STAR® Portfolio Manager? For building and space types not available in ENERGY STAR®, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings.</p>	<p>Use the Energy Star for buildings tool to calculate rate. Tool available at: https://www.energystar.gov/istar/pm/pam Document rating in the building manager's files.</p> <p>Or, use the Labs21 tool to calculate building rating. Tool available on-line at: http://labs21.lbl.gov/ Document rating in the building manager's files.</p>	<p>Energy Star Portfolio Manager provides energy summaries suitable to compare year to year: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager#manage</p> <p>WBDG Technical Guidance - Energy Efficiency: http://www.wbdg.org/references/mou_ee.php</p>	<p>No apparent effect on historic building or historic character.</p>

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III. Protect and Conserve Water			
Indoor Water. Two options can be used to measure indoor potable water use performance:			
<p>Option 1: Does the building manager reduce potable water use by 20% compared to a water baseline calculated for the building?</p> <p>The water baseline, for buildings with plumbing fixtures installed in 1994 or later, is 120% of the Uniform Plumbing Codes 2006 or the International Plumbing Codes 2006 fixture performance requirements. The water baseline for plumbing fixtures older than 1994 is 160% of the Uniform Plumbing Codes 2006 or the International Plumbing Codes 2006 fixture performance requirements.</p>	<p>For example, use Watergy water use modeling software in conjunction with data from the potable water utility to show the building reduced potable water use by 20%. Provide summary pages from Watergy http://www1.eere.energy.gov/femp/information/download_watergy.html or other water software tools.</p> <p>Keep requisitions on file for WaterSense labeled products. WaterSense labeled products that exceed plumbing codes fixture flow requirements are available at: http://www.epa.gov/watersense</p>	<p>Show a 20% reduction of fixture potable water use from the calculated fixture water usage baseline (Energy Policy Act of 1992). Use tools such as Watergy, the LEED water calculator, the ENERGY STAR Portfolio Manager for water savings (or similar) to establish baseline usage and calculated savings or provide documentation based on metering/bills. Some Federal facilities may not have a utility water meter. Because the EO 13423 requires agencies to report potable water use, agencies that have sites without metered potable water use (or 1 meter for multiple buildings) must estimate water consumption.</p>	<p>Are water meters installed in manners that respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Energy meters must be installed in secondary locations with minimal visibility that do not detract from the character of the building.</p> <p>Are rainwater collection units located in secondary or tertiary locations on the site (with limited visibility), or within the building, so they respect historic materials and the overall character of the building and site? If located on the roof, units must be placed so they are not highly visible from a public right of way. Archeological sites must be protected or avoided when placing below-ground rainwater collection units.</p>
<p>Option 2: Does the building reduce building measured potable water use by 20% compared to building water use in 2003 or a year thereafter with quality water data?</p>	<p>If building is metered, document a 20% reduction in potable water consumption between FY 2003 baseline or a year thereafter and the most recent annual water consumption report. If the building is not metered, the building cannot be considered to meet this option. If the building recently had a meter installed, the current water consumption can be compared to a calculated baseline for FY2003 or a year thereafter.</p>	<p>Calculate water consumption baseline for FY 2003 or year thereafter.</p> <p>http://www1.eere.energy.gov/femp/water/water_baseline.html</p> <p>Conduct an water management audit which will identify water conservations measures.</p>	<p>Are water meters installed in manners that respect historic materials and the overall character of the building and site? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Energy meters must be installed in secondary locations with minimal visibility that do not detract from the character of the building.</p> <p>Are rainwater collection units located in secondary or tertiary locations on the site (with limited visibility), or within the building, in manners that respect historic materials and the overall character of the building and site? If located on the roof, units must be placed so they are not highly visible from a public right of way. Archeological sites must be protected or avoided when placing below-ground rainwater collection units.</p>

	Compliance with Guiding Principles (GP) for Existing Buildings (EB)	Examples: How to Document Compliance with this GP	Examples: How to Make Progress Toward Compliance with this GP	Guidance for Historic Buildings (Required for Buildings listed on or eligible for the National Register of Historic Places, and National Historic Landmarks)
mance	<p>Outdoor Water. Three options can be used to measure outdoor potable water use performance:</p> <p>Option 1: Does the building reduce potable irrigation water use by 50% compared to conventional methods? or</p>	<p>For Option 1, the building must have submeter for potable irrigation water. Document a 50% reduction in potable water use for irrigation over conventional means of irrigation by using the Watergy or similar tool.</p> <p>If the building recently had a submeter installed, the current water consumption can be compared to a calculated baseline.</p>	<p>Watergy tools: http://www1.eere.energy.gov/femp/information/download_watergy.html</p> <p>WBDG Rainwater Harvesting Model Contract and Specification Language: http://www.wbdg.org/references/mou_ow.php</p>	<p>Are significant landscape features, such as designed gardens or archeological sites, avoided or protected when irrigation systems are installed? With any important landscape, proper irrigation levels must be maintained so historic plantings are not damaged or destroyed. See the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes</i>: http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm</p> <p>Also see <i>Preservation Brief 36 - Protecting Cultural Landscapes - Planning, Treatment and Management of Historic Landscapes</i>: http://www.nps.gov/history/hps/tps/briefs/brief36.htm</p>
	<p>Option 2: Does the building reduce building related potable irrigation water use by 50% compared to measured irrigation water use in 2003 or a year thereafter with quality water data? or</p>	<p>For Option 2, the building must have a submeter for potable irrigation water. Document a 50% reduction in potable irrigation water consumption compared to a measured FY2003 baseline or a year thereafter, preferably from the most recent annual water consumption report. If the building recently had a submeter installed, the current water consumption can be compared to a calculated baseline.</p> <p>If only one meter is installed for the building (indoor and outdoor combined) proceed to Indoor Water Option 2, reduce potable water use by 20%.</p>	<p>Percentage Reduction of Outdoor Potable Water Use = (Baseline Outdoor Potable Water Use – Post-Project Outdoor Potable Water Use) ÷ Baseline Outdoor Potable Water Use x 100</p> <p>Example: (113,000 gal/yr – 42,000 gal/yr) ÷ 113,000 gal/yr x 100 = 62.8% Reduction of Outdoor Potable Water Use; therefore, this project/facility complies with EO 13423 outdoor potable water use goals.</p> <p>Use a water conservation calculator such as this one for households from Miami-Dade County: http://www.miamidade.gov/conservation/water_calculator.asp</p>	<p>Are significant landscape features, such as designed gardens or archeological sites, avoided or protected when irrigation systems are installed? With any important landscape, proper irrigation levels must be maintained so historic plantings are not damaged or destroyed. See the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes</i>: http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm</p> <p>Also see <i>Preservation Brief 36 - Protecting Cultural Landscapes - Planning, Treatment and Management of Historic Landscapes</i>: http://www.nps.gov/history/hps/tps/briefs/brief36.htm</p> <p>Are rainwater collection units located in secondary or tertiary locations on the site (with limited visibility), or within the building, so they respect historic materials and the overall character of the building and site? If located on the roof, units must be placed so they are not highly visible from a public right of way. Archeological sites must be protected or avoided when placing below-ground rainwater collection units.</p>

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Water Quality and Perfor	Option 3: Does the facility use no potable irrigation water?	Document that no potable irrigation water is used at the facility. This could be a note from the facility manager to his or her project file.	Photograph of landscaping and maintenance system (non-potable water well, irrigation ditch, etc.). Or, photograph of facility with no landscaping.	<p>Are significant landscape features, such as designed gardens or archeological sites, avoided or protected when irrigation systems are installed? With any important landscape, proper irrigation levels must be maintained so historic plantings are not damaged or destroyed. See the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes</i>: http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm</p> <p>Also see Preservation Brief 36 - Protecting Cultural Landscapes - Planning, Treatment and Management of Historic Landscapes: http://www.nps.gov/history/hps/tps/briefs/brief36.htm</p> <p>Are rainwater collection units located in secondary or tertiary locations on the site (with limited visibility), or within the building, so they respect historic materials and the overall character of the building and site? If located on the roof, units must be placed so they are not highly visible from a public right of way. Archeological sites must be protected or avoided when placing below-ground rainwater collection units.</p>
	<p>Measurement of Water Use:</p> <p>The installation of water meters for building sites with significant indoor and outdoor water use is encouraged.</p> <p>If only one meter is installed, does the building reduce potable water use (indoor and outdoor combined) by at least 20% compared to building water use in 2003 or a year thereafter with quality water data?</p>	<p>Document that the building is metered. If new, retain statement of work, and billing records. If the building is not metered, the building cannot be considered to meet this option.</p> <p>Document a 20% reduction in potable water consumption between FY 2003 baseline or a year thereafter and the most recent annual water consumption report. If the building recently had a meter installed, compare the current water consumption to a calculated baseline for FY2003 or a year thereafter. It is recommended you keep the utility meter serial numbers on file in case of compliance audit.</p>	<p>Watery tools: http://www1.eere.energy.gov/femp/information/download_wateryy.html</p> <p>Maintain and regularly review chiller logs to identify opportunities to improve operating efficiencies.</p> <p>Federal Water Efficiency Directives: http://www1.eere.energy.gov/femp/water/water_fedrequire.html</p> <p>FEMP Federal Water Efficiency Best Management Practices: http://www1.eere.energy.gov/femp/water/water_bmp.html</p> <p>Water Conservation Calculator: http://www.us.kohler.com/waterconservation/calculator.jsp?section=2&nsection=2&nsubsection=1&nitem=article1</p>	<p>Are water meters installed in manners that will respect the historic character of the building? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired). Energy meters must be installed in secondary locations with minimal visibility that do not detract from the character of the building.</p>

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<p>Were strategies employed that reduce storm water runoff and discharges of polluted water offsite?</p> <p>Per EISA Section 438, where redevelopment affects site hydrology, use site planning, design, construction, and maintenance strategies to maintain hydrologic conditions during development, or to restore hydrologic conditions following development, to the maximum extent that is technically feasible.</p>	<p>Document a storm water management plan to reduce stormwater runoff, including technologies such as rain gardens, green roof, pervious pavement, rainwater recycling, etc.</p>	<p>EPA stormwater management program: http://www.epa.gov/greeningepa/s/tormwater/index.htm</p> <p>Rainwater Harvesting Model Contract and Specification Language: http://www.wbdg.org/references/mou_ow.php</p>	<p>Are new landscaping and paving features, used to reduce imperviousness, designed to protect and preserve the historic character of the site and not destroy significant historic landscape or archeological sites? New landscape features must be appropriate to the character of the building and site. For more information see <i>Whole Building Design Guide, Historic Preservation</i>: http://www.wbdg.org/design/historic_pres.php, the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i>: http://www.nps.gov/history/hps/tps/standards/index.htm, and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes</i>: http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm. Also see <i>Preservation Brief 36 - Protecting Cultural Landscapes - Planning, Treatment and Management of Historic Landscapes</i>: http://www.nps.gov/history/hps/tps/briefs/brief36.htm</p>
<p>Process Water:</p> <p>Per EPA 2005 Section 109, when potable water is used to improve a building's energy efficiency (e.g. new energy efficient chillers), were lifecycle cost effective water conservation measures deployed (e.g. keeping chiller water at the correct pH to prevent scaling and thus frequent flush to cleanse the system)?</p>	<p>For example, document pH and conductivity levels in potable water used in closed chill water systems through water chemistry.</p>	<p>Case study EPA R7 office: http://www.epa.gov/greeningepa/facilities/kansascity-hq.htm</p> <p>Case study: Veterans Affairs Hospital http://www1.eere.energy.gov/femp/water/water_va_portland.html</p>	<p>No apparent negative effects on historic buildings.</p>
<p>Water-Efficient Products:</p> <p>Where available, does the facility manager use EPA's WaterSense-labeled products or other water conserving products? Does the facility manager choose irrigation contractors who are certified through a WaterSense-labeled program?</p>	<p>Document requisitions with specification sheet for WaterSense-labeled or other water conserving products in building management files.</p>	<p>EPA WaterSense program: http://epa.gov/watersense/pubs/labell.htm</p>	<p>Are new water efficient products installed and utilized in manners that respect the historic building and its site and environment?</p> <p>Are irrigation contractors properly trained to identify significant historic features on site? These features must be protected when new irrigation equipment is installed. The preservation professional must be consulted when new equipment is considered that might adversely impact the historic landscape or any significant archeological sites.</p>

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IV. Enhance Indoor Environmental Quality			
<p>Ventilation and Thermal Comfort:</p> <p>Does the building meet ASHRAE Standard 55-2004 Thermal Environmental Conditions for Human Occupancy and ASHRAE Standard 62.1-2007: Ventilation for Acceptable Indoor Air Quality?</p>	<p>Document project designs and construction requisitions that comply with ASHRAE Standards 55-2004 and 62.1-2007.</p>	<p>WBDG Technical Guidance - Ventilation and Thermal Comfort: http://www.wbdg.org/references/mou_vtcomfort.php</p>	<p>Are new mechanical systems installed in manners that respect historic materials and the overall character of the building and site? To lessen the impact on a building's interior, new systems must be installed in secondary or utilitarian spaces, or in non-historic additions. Ductwork must be installed so ceiling heights are maintained (not lowered) in historically significant spaces, including corridors. It must also be located so it does not adversely impact spaces by falling in front of windows or below window heads. Care must be taken to avoid installing new systems that intersect or subdivide important spaces in insensitive ways. If new mechanical equipment is placed on the exterior of the building, it must be located in secondary places with limited visibility that does not negatively impacting the landscape.</p>
<p>Moisture Control:</p> <p>Does the building provide policy and illustrate the use of an appropriate moisture control strategy to prevent building damage, minimize mold contamination, and reduce health risks related to moisture? For façade renovations, Dew Point analysis and a plan for cleanup or infiltration of moisture into building materials are required.</p>	<p>Establish an ongoing plan for preventing moisture accumulation and mold in the building through re/retrocommissioning. Document periodic inspections of building materials and components and the implementation of appropriate ventilation and humidity controls. Have an appropriate inspection-driven moisture prevention strategy that includes maintenance of the roof drainage and the foundation system. Or document that your building does not have a moisture problem.</p>	<p>Some preventive design features include:</p> <ul style="list-style-type: none"> (a) maintaining design interior relative humidity at an appropriate level (e.g., between 30% and 50%); (b) controlling temperatures by heating or cooling the condensing surface (i.e., the outer-facing interior wall in cooling-load climates and the inner-facing exterior wall in heating-load climates); (c) preventing condensation on coils in accordance with ASHRAE 62.1-2004; and (d) cleaning all HVAC drip pans regularly and thoroughly. <p>WBDG Technical Guidance - Moisture Control: http://www.wbdg.org/references/mou_mc.php</p>	<p>Are proper levels of moisture and humidity maintained to protect the historic materials, interior finishes, and, when applicable, museum collections? Appropriate levels of moisture and humidity must be kept in historic buildings. To lessen the impact on a building's interior, new systems must be installed in secondary or utilitarian spaces, or in non-historic additions. Guidance from the Smithsonian Institution, "<i>Determining the Acceptable Ranges of Relative Humidity and Temperature in Museums and Galleries</i>" states "<i>it is acceptable to be within a RH and temperature box bounded between 37% RH and 53% RH and 66 F and 74 F.</i>" http://www.si.edu/mci/downloads/reports/Mecklenburg-Part1-RH.pdf</p> <p>For more information regarding moisture control in historic buildings, see, <i>Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings</i>: http://www.nps.gov/history/hps/tps/briefs/brief39.htm</p>

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Indoor Environmental Quality	Daylighting and Lighting Controls:			
	Does the building have automated lighting controls (occupancy/vacancy sensors with manual-off capability) provided for appropriate spaces including restrooms, conference and meeting rooms, employee lunch and break rooms, training classrooms, and offices?	Conduct a self audit of automated lighting controls in public spaces. Document results in the building management files.	Take a copy of floor plan and document location of automated lighting controls.	Are lighting fixtures historic? Historic fixtures must be retained and repaired rather than replaced and must respect the historic materials and the overall character of the building and site.
	Two options can be used to meet additional daylighting and lighting controls performance expectations:			
	Option 1: Does the building achieve a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 50 percent of all space occupied for critical visual tasks? or	Using a Candela Meter at desk height with the lights off, document the daylighting factor in foot candles or lumens of all space occupied for critical visual tasks. Document your results in the project file.	Need 50 foot candles at desk height. 2% of 50 foot candles is 1 foot candle of light. Take a copy of floor plan and document location of light readings.	Will changes to the historic building's window configuration, size, and shape be avoided to enhance the daylight factor or energy efficiency? To meet the Secretary of the Interior's Standards and to preserve a building's historic integrity, historic windows must be retained and repaired rather than replaced whenever possible. Energy efficiency can also be enhanced through the use of storm windows, weather stripping, and caulk. If windows are deteriorated beyond repair, new windows must match the old in design, color, texture, and, where possible, materials. If the original windows no longer exist and there is no physical evidence and/or pictorial documentation of the historic windows on which to base the new design, then new units must be compatible with the building's character. See National Park Service guidance on windows - <i>Evaluating Historic Windows for Repair or Replacement</i> : http://www.nps.gov/history/hps/tps/tax/download/windows_evaluation.pdf , and <i>Replacement Windows That Meet the Standards</i> : http://www.nps.gov/history/hps/tps/tax/download/windows_replacement.pdf
				If exterior sun shades or light shelves are used, will they be placed on secondary, rather than primary, elevations? Modern features, such as sun shades and light shelves, must not be placed on primary elevations. If awnings and other passive solar features exist (that were installed to control heat gain and glare), they must be retained and repaired rather than replaced with modern features. For information on historic awnings, reference, <i>Preservation Brief 44 - The Use of Awnings on Historic Buildings - Repair, Replacement & New Design</i> : http://www.nps.gov/history/hps/tps/briefs/brief44.htm
Option 2: Does the building provide occupant controlled lighting, allowing adjustments to suit individual task needs, for 50% of regularly occupied spaces?	Conduct a self audit of accessible occupant controlled lighting, allowing adjustments to suit individual task needs, for 50% of regularly occupied spaces. Document results in the building management files.	Take a copy of floor plan and document location of accessible occupant controlled lighting.	Are lighting fixtures historic? Historic fixtures must be retained and repaired rather than replaced and must be compatible with the historic character of the building and site. They must also be installed with minimal damage to historic architectural materials.	

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<p>Low-Emitting Materials:</p> <p>Does the building use low emitting materials for building modifications, maintenance, and cleaning?</p> <p>In particular, specify the following materials and products to have low pollutant emissions: composite wood products, adhesives, sealants, interior paints and finishes, solvents, carpet systems, janitorial supplies, and furnishings.</p>	<p>Document that facility management monitors compliance with the low emitting materials purchasing requirements of EO 13423, develops corrective action plans to address shortcomings, and conducts training on green purchasing requirements and alternatives for low emitting materials.</p> <p>Document that contracts have specific language for the purchase of low emitting materials, durable goods, consumables, renovations, repairs, and for green cleaning. In particular capture language that references VOC limits and Green Seal products.</p>	<p>Review DOI or bureau affirmative/green procurement plan. http://www.doi.gov/greening/procurement/programs.html</p> <p>WBDG Technical Guidance - Low-Emitting Materials including model contract and specification language: http://www.wbdg.org/references/mou_lem.php</p> <p>Establish contracts with specification language for the purchase of low emitting materials, durable goods, consumables, renovations, repairs, and for green cleaning. Ensure that language is explicit, such as VOC limits and Green Seal requirements are clearly specified.</p>	<p>Have new low-emitting materials been installed in manners that respect historic materials and the overall character of the building and site? The character and integrity of the historic building must be retained despite the use of any low-emitting materials.</p> <p>Will cleaning products be used that maintain historic finishes or features without damaging or destroying them in the process? The gentlest possible means must be used to protect historic fabric when these products or techniques are employed.</p>
<p>Integrated Pest Management:</p> <p>Does the building use integrated pest management techniques as appropriate to minimize pesticide usage?</p> <p>Use EPA-registered pesticides only when needed.</p>	<p>Document the facility has an Integrated Pest Management Plan that specifies strategies to reduce pesticide usage, and use of EPA-registered pesticides only when needed.</p>	<p>Integrated Pest Management Plans example for the County of Ventura: http://portal.countyofventura.org/pls/portal/docs/page/gsa/green_initiatives/reduce/files/IPM_Plan.pdf</p>	<p>Will pest management techniques be sensitively used so they do not impact historic features and finishes? Historic features and finishes must be protected while these products are in use.</p>
<p>Environmental Tobacco Smoke Control:</p> <p>Does the building prohibit smoking within 25 feet of all building entrances, operable windows, and building ventilation intakes?</p>	<p>Use building inspection control form such as GSA 3423 <i>Mechanical Inspection Report</i>, to document that facility management regularly check and enforce as necessary that designated tobacco smoking areas are 25 feet away from all building entrances, operable windows, and building ventilation intakes.</p>	<p>Make rules clear to personnel through signage, education and enforcement of the designated smoking areas. Provide alternatives as necessary that are easy to access. If appropriate, employ a contractor to analyze building air intakes to ensure no smoke is entering the building's ventilation systems.</p>	<p>Will signage be sensitively installed so it does not damage historic building materials or detract from its character-defining features? If they are installed on masonry buildings, anchors must be inserted into the mortar joints (which can be repaired), rather than directly into the masonry or masonry units (which cannot be repaired).</p>

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V. Reduce Environmental Impact of Materials			
<p>Recycled Content</p> <p>Per section 6002 of RCRA, for EPA designated products, does facility management use products meeting or exceeding EPA's recycled content recommendations for building modifications, maintenance, and cleaning?</p> <p>For other products, does facility management use materials with recycled content such that the sum of postconsumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost or weight) of the total value of the materials in the project?</p> <p>If EPA-designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building.</p>	<p>In compliance with the facility Environmental Management System, document purchase of EPA-designated products included in all solicitations relevant to construction, operation, maintenance of or use in the building. For example keep on file contract clauses, product specifications, market research, and product requisitions. Some of this purchasing information may be included in the DOI Sustainable Practices Report.</p>	<p>EPA's recycled content product designations and recycled content recommendations are available on EPA's Comprehensive Procurement Guideline web site at <www.epa.gov/cpg>. Database of Environment Information for Products and Services http://yosemite1.epa.gov/oppt/epstand2.nsf/Pages/Search.html?Open</p> <p>Earth 911 has list of environmentally preferable products www.earth911.org</p> <p>WBDG Technical Guidance - Recycled Content model contract and specification language: http://www.wbdg.org/references/mou_rc.php</p>	<p>Will the removal and replacement of important historic features and finishes be avoided for the sole intent of installing new materials with a higher degree of recycled content? Care must be taken to retain and repair existing historic materials in place.</p>

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Materials Selection	<p>Biobased Content:</p> <p>Per section 9002 of FSRIA, for USDA-designated products, does facility management use products with the highest content level per USDA's biobased content recommendations?</p> <p>For other products, does facility management use biobased products made from rapidly renewable resources and certified sustainable wood products?</p> <p>If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them should be included in all solicitations relevant to construction, operation, maintenance of or use in the building.</p>	<p>In compliance with the facility Environmental Management System, document purchase of biopreferred products included in all solicitations relevant to construction, operation, maintenance of or use in the building. Document market research if products are not available at a reasonable cost. For example keep on file contract clauses, product specifications, market research, and product requisitions. Some of this purchasing information may be included in the DOI Sustainable Practices Report.</p>	<p>USDA's biobased product designations and biobased content recommendations are available on USDA's BioPreferred web site at www.usda.gov/biopreferred.</p> <p>Catalog of Biopreferred Products http://www.biopreferred.gov/Catalog.aspx</p>	<p>Will the removal and replacement of important historic features and finishes be avoided for the sole intent of installing new materials with a higher degree of recycled content? Care must be taken to retain and repair existing historic materials in place.</p>
	<p>Environmentally Preferable Products:</p>			
	<p>Does facility management use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared with competing products or services that serve the same purpose?</p>	<p>In compliance with the facility Environmental Management System, document that purchase of products that have a lesser or reduced effect on human health and the environment is included in all solicitations relevant to construction, operation, maintenance of or use in the building. For example, keep on file contract clauses, product specifications, market research, and product requisitions. Some of this purchasing information may be included in the DOI Sustainable Practices Report.</p>	<p>For recommendations for operations and maintenance consult third-party certified ecolable such as Green Seal, online at: http://greenseal.org/. For recommendations for minor repairs and renovations, consult the Federal Green Construction Guide for Specifiers at www.wbdg.org/design/greenspec.php. Review you're bureau's affirmative/green procurement plan. Products examples are available at the EPA EPP http://www.epa.gov/epp/pubs/products/index.htm</p>	<p>Will cleaning products be used that maintain historic finishes or features without damaging or destroying them in the process? The gentlest possible means must be used to protect historic fabric when these cleaning products or techniques are employed.</p>

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<p>Waste and Materials Management:</p> <p>Does facility management provide reuse and recycling services for building occupants, where markets or on-site recycling exist?</p> <p>Does facility management provide salvage, reuse and recycling services for waste generated from building operations, maintenance, repair and minor renovations, and discarded furnishings, equipment and property? This could include such things as beverage containers and paper from building occupants, batteries, toner cartridges, outdated computers from an equipment update, and construction materials from a minor renovation.</p>	<p>Documentation may be in the form of certificates of recycling or contracts with local recycling and product reclaiming services.</p> <p>Documentation may include contract specifications for waste management services with on-site vendors (e.g. cafeteria service vendor).</p> <p>Document that the facility has a Waste Management Plan that ensures compliance with this requirement.</p> <p>Document market research that shows what recycling markets are available in your area.</p>	<p>Calculate the percentage of facility alterations waste diverted from landfills and incineration facilities by conducting a waste characterization analysis.</p> <p>Waste may be apportioned by major category, such as flooring, walls, plumbing, and electrical etc. to estimate the volume and weight of waste diverted.</p> <p>Establish current waste management policies, for example, the carpet recycling policy for the facility.</p> <p>WBDG Technical Guidance - Construction Waste: http://www.wbdg.org/references/mou_cw.php and http://www.wbdg.org/design/green/spec_msl.php?s=017419</p>	<p>Will historic materials remain in place and not be removed, recycled, or salvaged for use in other projects? Reuse of an existing building is an inherent form of recycling.</p> <p>To ensure historic materials are protected and preserved, a preservation professional (preservation architect, architectural historian, preservation consultant) must be included in the integrated team when site demolition is proposed.</p> <p>Are on-site recycling facilities located in secondary, utilitarian, or industrial spaces so the historic character of the building and landscaping are not impacted? Care must be taken to protect historic fabric when recycling or other waste products are stored in historic buildings. Hazardous materials stored on site must not damage the historic building or its surroundings.</p>

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<p>Ozone Depleting Compounds</p> <p>Does facility management eliminate the use of ozone depleting compounds where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts?</p>	<p>Document zero use of CFC-products in your facility Environmental Management Program, procurement policies, contract language, maintenance logs, inspection logs, etc. If any CFC-products are located in the facility, document that a phase-out plan is in place.</p> <p>Document market research that shows what products that meet this requirement are available in your area.</p>	<p>Use all alternatives consistent with EPA's Significant New Alternatives Policy (SNAP) regulatory requirements. http://epa.gov/ozone/snap/lists/index.html Follow the provisions of the following: FAR 52.223-11 Ozone Depleting Substances, FAR 52.223-12 Refrigeration Equipment and Air conditioners. Do not purchase aerosols or foam products except for those permitted by 40 CFR part 82 subpart C. Do not use halons in fire suppression.</p> <p>FAR Subpart 23.8- Ozone-Depleting Substances http://www.arnet.gov/far/0219/html/Subpart_23_8.html</p> <p>WBDG Technical Guidance - Ozone Depleting Compounds http://www.wbdg.org/references/mou_odc.php</p>	<p>No apparent negative effects on historic buildings.</p>

Definitions and Other Pertinent Information for the Guidance on Historic Buildings

Advisory Council on Historic Preservation - The mission of the ACHP is to promote the preservation, enhancement, and productive use of the Nation's historic resources, and to advise the President and Congress on national historic preservation policy.

<http://www.achp.gov/>

Character - The visual aspects and physical features that comprise the appearance of every historic building.

Preservation Brief 17 – *Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* <http://www.nps.gov/history/hps/tps/briefs/brief17.htm>

Preservation Brief 18 – *Rehabilitating Interiors in Historic Buildings – Identifying and Preserving Character-Defining Elements* <http://www.nps.gov/history/hps/tps/briefs/brief18.htm>

Character-Defining Features/Elements - These include the overall shape of a building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of a building's site and environment.

Preservation Brief 17 – *Architectural Character – Identifying the Visual Aspects of Historic buildings as an Aid to Preserving Their Character* <http://www.nps.gov/history/hps/tps/briefs/brief17.htm>

Compatible Treatment - Any alteration or addition to the interior or exterior of a historic building that is harmonious or appropriate to the character of the building in design, scale, massing, materials, texture, and other visual qualities.

Cultural Landscape - A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes. http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm

Preservation Brief 36: *Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes.* <http://www.nps.gov/history/hps/tps/briefs/brief36.htm>

Exterior Finishes – The materials used on the exterior of a building, such as brick, stone, wood clapboard or weatherboard, glazed terracotta, shingle, concrete, metal, etc..

Preservation Brief 2 – *Repointing Mortar Joints in Historic Masonry Buildings* <http://www.nps.gov/history/hps/tps/briefs/brief02.htm>

Preservation Brief 5 – *Preservation of Historic Adobe Buildings* <http://www.nps.gov/history/hps/tps/briefs/brief05.htm>

Preservation Brief 7 – *The Preservation of Historic Glazed Architectural Terra-Cotta* <http://www.nps.gov/history/hps/tps/briefs/brief07.htm>

Preservation Brief 15 - *Preservation of Historic Concrete* <http://www.nps.gov/history/hps/tps/briefs/brief15.htm>

Preservation Brief 16 - *The Use of Substitute Materials on Historic Building Exteriors*
<http://www.nps.gov/history/hps/tps/briefs/brief16.htm>

Preservation Brief 22 - *The Preservation and Repair of Historic Stucco*
<http://www.nps.gov/history/hps/tps/briefs/brief22.htm>

Finished Spaces – Those rooms on the interior of a building that are finished with plaster, gypsum wall board, or other covering materials. These are typically in more refined buildings, such as houses, apartment buildings, hotels, theaters, churches, office buildings, and museums. They often have mill work (trim) around windows, doors, transoms and where horizontal and vertical walls intersect (i.e., baseboards and cornices). They may or may not contain further decoration and the underlying structural framing is generally concealed. Flooring is appropriate to the character of the interior and includes wood, carpet, tile, terrazzo, marble, etc.

Illustrated Guidelines for Rehabilitating Historic Buildings – Spaces/Features/Finishes
<http://www.nps.gov/history/hps/tps/tax/rhb/spaces01.htm>

Finishes - The architectural materials that “finish” or complete the interior of a building, such as plaster, gypsum wall board, paneling, flooring, decoration, etc..

Illustrated Guidelines for Rehabilitating Historic Buildings – Spaces/Features/Finishes
<http://www.nps.gov/history/hps/tps/tax/rhb/spaces01.htm>

Preservation Brief 28 – *Painting Historic Interiors*
<http://www.nps.gov/history/hps/tps/briefs/brief28.htm>

Federal Preservation Officer (FPO) – Each Federal agency has a Federal Preservation Officer.

Advisory Council on Historic Preservation – Federal, State and Tribal Historic Preservation Officers <http://www.achp.gov/programs.html>

Historic Building - A building that is generally at least 50 years old, is significant for historical, architectural, engineering, archeological, or cultural reasons, and is listed in or eligible for the National Register of Historic Places either individually or as a contributing building in a historic district.

National Register Bulletin - How to Apply the National Register Criteria for Evaluation. <http://www.nps.gov/nr/publications/bulletins/nrb15/>

Historic Fabric - The architectural materials that comprise a historic building on the interior and exterior.

HVAC – Heating, ventilation and air-conditioning. New systems must be sensitively installed in historic interiors without adversely impacting primary spaces or damaging (or removing) historic architectural features and finishes. Ideally they should be placed in non-significant or utilitarian areas (see definition of Utilitarian and service-oriented areas below). The lowering of ceilings to insert new systems must be kept to a minimum and ductwork must not block or intersect windows. When new mechanical equipment is placed on the exterior of buildings it must have limited visibility and must not disturb significant landscape features.

...changes in materials, finishes, and fixtures create significant landscape features.

Industrial Spaces – “Industrial” spaces are those interior rooms of a building that generally have the structure exposed for durability, ease of maintenance, and/or hygiene. These typically have industrial, manufacturing, or service-oriented purposes and are often warehouses or factories. They are characterized by exposed masonry (e.g., brick, concrete block, stone), exposed structural framing (e.g., timber or metal columns, beams and trusses), unfinished floors (e.g., unvarnished wood or concrete), and other more utilitarian components (e.g., sliding fire doors, freight elevators, riveted steel members, etc). They may or may not include trim or other forms of decoration.

Integrity - The authenticity of a building's historic identity, evidenced by the survival of physical characteristics that existed during its historic period. It is also the extent to which a building retains its historic appearance.

Interior Finishes - The materials used on the interior of a building, such as plaster [flat; decorative], gypsum wall board, wood paneling, flooring (e.g., wood, tiling, terrazzo, marble), wainscoting, etc..

Preservation Brief 21 – Repairing Historic Flat Plaster Walls and Ceilings
<http://www.nps.gov/history/hps/tps/briefs/brief21.htm>

Landscape Features - In addition to vegetation and topography, cultural landscapes may include water features, such as ponds, streams, and fountains; circulation features, such as roads, paths, steps, and walls; buildings; and furnishings, including fences, benches, lights and sculptural objects.

Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes.
http://www.nps.gov/history/hps/hli/landscape_guidelines/index.htm

Preservation Brief 36: *Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes.*
<http://www.nps.gov/history/hps/tps/briefs/brief36.htm>

MEP – Mechanical, electrical and plumbing. See requirements for heating, ventilation and air-conditioning and protecting historic buildings.

National Register of Historic Places - The official list of the Nation's places worthy of preservation. Authorized by the Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate and protect America's historic and archeological resources.

National Register of Historic Places homepage: <http://www.nps.gov/history/nr/>

National Register of Historic Places Bulletin - How to Apply the National Register Criteria for Evaluation
<http://www.nps.gov/nr/publications/nrb15ns/nrb15/>

Preservation - The act or process of applying measures to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

The Secretary of the Interior's Standards for Preservation.
http://www.nps.gov/history/hps/tps/standguide/preserve/preserve_index.htm

Preservation Professional - A person with considerable experience working with historic buildings and with knowledge of the Secretary of the Interior's Standards. This individual should meet the Secretary of the Interior's Professional Qualification Standards in history, archeology, architectural history, or historic architecture or other allied field.

Archeology and Historic Preservation Standards; Secretary of the Interior's Standards and Guidelines (as amended and annotated)
http://www.nps.gov/history/local-law/arch_stnds_9.htm

Primary Spaces – Those spaces that are important in defining the historic character of a building and should be retained or only minimally altered. Generally, front areas of a building are more important than the back; lower floors are more important than upper floors; and visible and public areas are more important than obscured and private areas. Whenever possible, major alterations should be undertaken in secondary spaces to preserve the historic character of the building.

Interior Treatments, Identifying Primary and Secondary Interior Spaces in Historic Buildings.
<http://www.nps.gov/history/hps/tps/guidance.htm>

Private Spaces – The spaces are traditionally set apart from the public spaces and include individual offices, bedrooms, guestrooms in a hotel, and work spaces.

Public Spaces – These spaces are those that are traditionally open to the public or are the most primary spaces in a building such as foyers, parlors, lobbies, hallways, meeting spaces, or auditoriums.

Reconstruction - The act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

The Secretary of the Interior's Standards for Reconstruction.
http://www.nps.gov/history/hps/tps/standguide/reconstruct/reconstruct_index.htm

Rehabilitation - The act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

The Secretary of the Interior's Standards for Rehabilitation.
<http://www.nps.gov/history/hps/tps/tax/rehabstandards.htm>

Illustrated Guidelines for Rehabilitating Historic Buildings.
<http://www.nps.gov/history/hps/tps/tax/rhb/index.htm>

Restoration - The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical electrical and plumbing systems and other code-related work to make properties functional is appropriate within a restoration project.

make properties functional is appropriate within a restoration project.

The Secretary of the Interior's Standards for Restoration.

http://www.nps.gov/history/hps/tps/standguide/restore/restore_index.htm

Secretary of the Interiors Standards for the Treatment of Historic Properties - The Standards are neither technical nor prescriptive, but are intended to promote responsible preservation practices that help protect our Nation's irreplaceable cultural resources. For example, they cannot, in and of themselves, be used to make essential decisions about which features of the historic building should be saved and which can be changed. But once a treatment is selected, the Standards provide philosophical consistency to the work. The four "Treatment Standards" are as follows and are listed in order of the least to most amount of intervention required:

1. *Preservation*
2. *Rehabilitation*
3. *Restoration*
4. *Reconstruction*

(see definitions of each treatment standard - listed alphabetically in this document)

Secretary of the Interior's Standards for the Treatment of Historic Properties. <http://www.nps.gov/history/hps/tps/standguide/>

When the Standards are Regulatory.

http://www.nps.gov/history/hps/tps/standards/standards_regulatory.htm

State Historic Preservation Officer (SHPO) – Each of the 50 states in the nation, as well as the US territories, has a state historic preservation office who administers the State Historic Preservation Program. This is an excellent source of information on historic properties.

National Conference of State Historic Preservation Offices. <http://www.ncshpo.org/>

Tribal Preservation Officer (THPO) – In 1992, U. S. Congress adopted amendments to the National Historic Preservation Act that allows Federally-recognized Indian tribes to take on more responsibility for the preservation of significant historic properties on tribal lands.

Advisory Council on Historic Preservation – Tribal Historic Preservation Officers <http://www.achp.gov/thpo.html>

Utilitarian or Service-Oriented Spaces – These are generally more secondary in nature and commonly include attics, basements, crawl spaces, kitchens, bathrooms, and mechanical rooms. They tend to be in more remote locations on the interiors of historic buildings and are often less finished than primary spaces. These areas are more likely to accept change - when compared to primary spaces - without impacting the historic integrity of the interior.

