



United States Department of  
**Health & Human Services**

Federal Real Property Asset Management

## **Sustainable Buildings Implementation Plan**



31 December 2007

**Office for Facilities Management and Policy**

*Office of the Assistant Secretary for Administration and Management*

**Department of Health and Human Services  
Sustainable Buildings Implementation Plan  
December 2007**

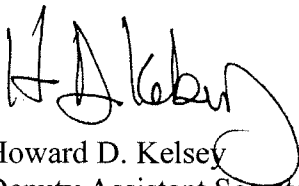
**EXECUTIVE SUMMARY**

On January 24, 2006, the Department of Health and Human Services signed the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) to commit to Federal leadership in implementing common strategies for planning, acquiring, siting, designing, building, operating, and maintaining high performance and sustainable buildings. Twenty-one agencies signed the MOU. The MOU establishes a common set of Guiding Principles to 1) employ integrated design principles; 2) optimize energy performance; 3) protect and conserve water; 4) enhance indoor environmental quality; and 5) reduce environmental impact of materials. These Guiding Principles will help the Department of Health and Human Services achieve the MOU goals:

- Reduce the total ownership cost of facilities;
- Improve energy efficiency and water conservation;
- Provide safe, healthy, and productive built environments; and
- Promote sustainable environmental stewardship.

On September 8, 2006, the Department issued the HHS Policy for Sustainable and High Performance Buildings. The Department subsequently issued its initial Sustainable Buildings Implementation Plan in December 2006 implementing the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings*.

This December 2007 update of the Department's Sustainable Building Implementation Plan incorporates the requirements of E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 26, 2007. This plan includes an update to the HHS Policy to realign our goals consistent with those of the E.O. 13423. HHS will continue to report semi-annually on its progress to promote continuous improvement toward the goals.



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Deputy Assistant Secretary for Facilities Management and Policy

**Department of Health and Human Services  
Sustainable Buildings Implementation Plan  
December 2007**

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**SUSTAINABLE BUILDINGS IMPLEMENTATION PLAN**  
**Matrix of Current Status and Milestones**

ACTION ITEM	CURRENT STATUS	NEXT STEPS	INDIVIDUAL RESPONSIBLE	TARGET COMPLETION DATE	ACTUAL COMPLETION DATE
<b>PROGRAMMING AND IMPLEMENTATION</b>					
<p>Develop Sustainable Design/Green Buildings Policy and Implementation Plan that:</p> <ul style="list-style-type: none"> <li>- Covers applicable building projects (i.e., new buildings, leases, build-to-lease projects, and major and minor renovations) based on building type, size, and/or budget.</li> <li>- Complies with OMB Circular A-11 Part 7 Section 300 - Planning, Budgeting, Acquisition, and Management of Capital Assets.</li> </ul>	<p><i>HHS Policy for High Performance and Sustainable Buildings complete and issued on 9/8/06. Updated 12/31/07 to reflect E.O. 13423 requirements.</i></p> <p><i>Implementation Plan (IP) complete and issued on 12/21/06. IP includes definitions (Appendix C). Definitions updated 12/31/07 to reflect E.O. 13423.</i></p> <p><i>IP complies with OMB Circular A-11.</i>  <a href="http://www.whitehouse.gov/omb/circulars/a11/current_year/s300.pdf">http://www.whitehouse.gov/omb/circulars/a11/current_year/s300.pdf</a>  <i>Asset management integrated in budget decision-making process, including measurable performance goals. Budget guidance and supporting documentation incorporated sustainability into business case for each new project beginning with FY 2008 budget cycle.</i></p>	<p><i>Policy reviewed annually. Implementation plan reviewed quarterly. Status Report provided semi-annually to OFEE/OMB.</i></p> <p><i>Definitions reviewed annually.</i></p> <p><i>A-11 requirements reviewed annually to ensure incorporation into budget guidance and documentation.</i></p>	<p><i>HHS workgroup</i></p> <p><i>HHS workgroup</i></p> <p><i>OFMP</i></p>	<p><i>12/31/06</i>  <i>12/31/07 update</i></p> <p><i>6/30/08 status report</i>  <i>12/31/08 update</i></p> <p><i>12/31/08 update</i></p> <p><i>7/1/08 review for inclusion in</i>  <i>12/31/08 update</i></p>	<p><i>12/21/06</i>  <i>12/31/07 update</i></p>

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<p>Ensure that Agency policies employing Integrated Project Teams for capital asset acquisition are applied at the earliest stages of project planning (i.e., pre-funding, conceptual design) for all capital asset projects involving new buildings, build-to-lease, and/or major renovations in order to address the <i>Guiding Principles</i>. Depending on project size and scope, these teams should have expertise in: sustainable design, energy, environment, occupational safety and health, commissioning, measurement and verification, water efficiency, facilities, building materials, ventilation and thermal comfort, moisture control, day lighting, indoor air quality, construction waste, and other green building qualifications for the design, construction, commissioning, and operation of the project. It is expected that these integrated teams will include both federal and nonfederal (within the contracted project team) staff.</p>	<p><i>Integrated project team (IPT) definition complete and consistent with OMB A-11. Projects requiring IPT incorporated into Appendix E (excludes OPDIV's without delegated leasing authority).</i></p> <p><i>Requirements incorporated into pre-budget guidance.</i></p> <p><i>All new projects initiated after 3/1/07 require an IPT.</i></p> <p><i>In establishing a core IPT for each project OPDIVs:</i></p> <ul style="list-style-type: none"> <li>• <i>Identify expertise required based on specific project scope and size.</i></li> <li>• <i>Assess if internal or external resources are available.</i></li> <li>• <i>Core team members must participate in Project Definition Rating Index (PDRI).</i></li> </ul> <p><i>Each OPDIV (landholders and/or delegated leasing authority) captures in Appendix J how they</i></p>	<p><i>OPDIVs quarterly update Appendix J to reflect current status of IPT implementation. Status report semi-annual to OFEE/OMB.</i></p> <p><i>When not available in-house, OPDIVs consider IDIQ contracts with expertise in green building qualifications for design, construction, commissioning and operations of project.</i></p>	<p><i>OPDIVs</i></p>	<p><i>6/30/07</i> <i>12/31/07 update</i></p> <p><i>6/30/08 status report</i></p>	<p><i>3/1/07</i> <i>12/31/07 update</i></p>

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	<i>establish an IPT approach that ensures a project sustainability strategy is incorporated consistent with the policy</i>				
Develop a procedure to incorporate the <i>Guiding Principles</i> in all business cases for new building construction or major renovations developed per OMB A-11 Part 7 Section 300.	<i>Review of A-11 complete and updated FPAA forms as part of FY09 budget cycle. Leasing checklist for sustainability incorporated into Appendix G; Sustainability checklist developed for federally-owned assets. Pre-budget guidance incorporated sustainability requirements including checklists. (Pre-budget guidance issued 3/1/07; updated FPAA forms forwarded 4/9/07.)</i>	<i>Update annually FPAA guidance to ensure all OMB requirements are incorporated into FPAA to support the business case for each project.</i>	<i>OFMP</i>	<i>6/30/07  6/30/08 update</i>	<i>4/9/07</i>
Perform a “gap analysis” of existing policies, programs, criteria, specifications, and authorities that address sustainable buildings goals and identify shortfalls.	<i>Developed Sustainability checklists for leased and federally-owned facilities. (Appendix G)</i>	<i>Remaining action pending completion of Existing Building Strategy in FY08: Update HHS Facilities Program Manual. Also requires coordination with ongoing PMA Tiger Team initiatives.</i>	<i>HHS Workgroup</i>	<i>6/30/07  12/31/08 update of HHS Facilities Program Manual</i>	<i>5/11/07</i>
Establish specific sustainability performance targets for meeting goals in the <i>Guiding Principles</i> .	<i>Defined applicable mandated goals vs. desirable goals and summarized in Appendix F.</i>		<i>HHS Workgroup</i>	<i>6/30/07</i>	<i>5/11/07</i>

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	<p><i>Developed checklist for Build-to-Lease, Construction, and Renovation projects. Requirements were cross-referenced to E.O. 13423.</i></p> <p><i>All new projects require checklist as of 5/11/07.</i></p> <p><i>OPDIVs are providing Sustainability Checklist capturing goals and targets for new construction, Build-to-Lease, and renovation projects as part of FPAA documentation as of 5/11/07.</i></p> <p><i>Lease actions require Sustainability Checklist (leasing) included in documentation for lease clearance as of 10/1/2007.</i></p>	<p><i>The OPDIVs shall establish a framework for performance goals and quarterly report progress in Appendix J. Status report semi-annual to OFEE/OMB.</i></p> <p><i>Where applicable, the IPT shall establish and monitor performance goals consistent with the sustainability strategy for the project and document in the FPAA.</i></p> <p><i>The IPT shall 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 building.</i></p> <p><i>Performance goals shall be established at pre-project planning; identify specific technologies to be considered.</i></p>	<p><i>OPDIVs</i></p> <p><i>IPT as each project is developed and monitored through completion</i></p>	<p><i>6/30/08 status report</i></p>	

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		<i>The IPT shall determine the level of appropriate certification under LEED™ or Green Globes; and incorporate, or consider, EMS plans.</i>			
Identify key players, their responsibilities, and functional relationships in the decision-making process.	<i>Policy incorporates roles and responsibilities; implementation plan defines OPDIV responsibilities. Matrix (Appendix J) summarizes current implementation status within OPDIVs.</i>	<i>OPDIVs quarterly update Appendix J to reflect current status of IPT implementation. Status report semi-annual to OFEE/OMB.</i>  <i>Implementation guidance incorporated into annual pre-budget guidance.</i>	<i>OPDIVs</i>  <i>OFMP</i>	<i>6/30/07</i> <i>6/30/08 status report</i>  <i>3/30/08 pre-budget guidance</i>	<i>3/1/07</i>
Create template agreements to be used by building property officials and senior management to demonstrate commitment to the <i>Guiding Principles</i> .	<i>Checklists for Leasing, Build-to-Lease, Construction, and Renovation projects, cross-referenced to E.O. 13423, required all new projects and incorporated into Appendix G.</i>  <i>Updated FPAA forms as part of FY09 budget cycle reflected sustainability requirements.</i>	<i>Analysis of results achieved using the sustainability checklists. Annually assess if refinements are required.</i>	<i>HHS Workgroup</i>	<i>6/30/07</i> <i>6/30/08 update</i>	<i>3/1/07 Leasing checklist</i> <i>4/9/07 Construction checklist</i> <i>5/11/07 FPAA update</i>
Establish procedures for measuring compliance with established mandates, goals, targets, and applicable score cards.	<i>Completed tool for assessing existing building inventory; format for reporting progress; and checklist for build-to lease, construction</i>	<i>Pilot of existing building tool in process on 2 facilities. Assessment of results and adjustments to tool pending; will be incorporated into</i>	<i>HHS Workgroup</i>	<i>6/30/07</i> <i>6/30/08 update</i>	<i>5/11/07</i>



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	<p><i>and renovation projects developed with 2-part format:</i></p> <ul style="list-style-type: none"> <li>• <i>Planning</i></li> <li>• <i>Project completion</i></li> </ul>	<p><i>Existing Building Strategy. Annual review of checklist use and progress report format to assess if required data is being captured.</i></p>			
Describe how the Sustainable Buildings Program is being coordinated with the EMS and Agency's asset management plan.	<p><i>Sustainable Buildings Program incorporated into updated RAMP.</i></p> <p><i>Approach for coordinating the Sustainable Buildings Program with Environmental Management Systems (EMS) at appropriate facilities distributed to OPDIVs.</i></p> <p><i>OPDIV implementation progress captured in Appendix K.</i></p>	<p><i>Implementation approach for coordinating the Sustainable Buildings Program with facility-level EMS ongoing.</i></p> <p><i>Status Report provided semi-annually to OFEE/OMB.</i></p>	<p><i>HHS Workgroup OFMP</i></p> <p><i>OPDIVs</i></p> <p><i>OPDIVs</i></p>	<p><i>6/30/07</i></p> <p><i>12/31/07</i></p> <p><i>6/30/08 status report</i></p>	<p><i>5/2/07</i></p> <p><i>12/31/07 status report</i></p>
Create a strategy for promotion of the plan to the field by education and training.	<p><i>Incorporated Sustainability into curriculum of Facilities Management Training Program.</i></p> <p><i>IHS has at least one person LEED certified.</i></p>	<p><i>Complete.</i></p> <p><i>Each land-holding OPDIV shall have a program to train/certify at least one facilities person in LEED. Status need to be reevaluated based on recent staff moves. Where not available, services through an IDIQ contract</i></p>	<p><i>OPDIV's</i></p>	<p><i>6/30/07</i></p> <p><i>12/31/08 tentative</i></p>	<p><i>6/30/07</i></p>

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		<i>may be used. NIH is also sponsoring a workshop in mid-January 2008.</i>			
Create a strategy for communication of the plan to the authority having jurisdiction to incorporate plan/goals into their services	<i>Original implementation plan distributed 12/21/07. Updates distributed quarterly thereafter.</i>	<i>Policy, if needed, and IP updated annually. Appendices and status of implementation updated quarterly and posted to OFMP web page.</i>	<i>OFMP</i>	<i>6/30/07</i>	<i>3/1/07</i>
Modify all pertinent Agency policies to incorporate <i>Guiding Principles</i> .	<p><i>Policy updated to reflect requirements of E.O. 13423.</i></p> <p><i>Researched extramural construction programs and determine feasibility of incorporating sustainability into grants policy</i></p> <ul style="list-style-type: none"> <li>• <i>Project scope</i></li> <li>• <i>Legislation</i></li> <li>• <i>Level of HHS oversight</i></li> </ul> <p><i>Recent budget submittals have not included extramural funding for construction; although review of actual appropriations identified earmarks that included design and/or construction funding.</i></p>	<p><i>Reissue policy to reflect current performance targets. SRPO letter to GSA superseded by new green clauses for GSA lease solicitations.</i></p> <p><i>Update the HHS Facilities Program Manual. Requires coordination with updates from PMA Tiger Team initiatives.</i></p> <p><i>Policy update includes language encouraging inclusion of sustainable design principles in grants over \$1M. Will work with grant programs to codify in grants policy to the extent possible. Monitor 2008 appropriation for construction grants.</i></p>	<i>HHS Workgroup</i>	<p><i>12/31/07 update (policy only)</i></p> <p><i>Revised 12/31/08</i></p> <p><i>6/30/08 grants policy review and strategy</i></p>	<i>12/31/07 update (policy only)</i>

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Establish procedures to incorporate the <i>Guiding Principles</i> into criteria, leases, contract language, designs, and specifications for new construction, build-to-lease, major renovations and existing building operation and maintenance. The procedures should allow for and encourage continual improvement ( <i>Note: consider utilizing the WBDG Federal Green Construction Guide for Specifiers</i> )	<i>Policy and Implementation Plan issued. Guidelines complete for new construction, build-to-lease, and major renovations (5/11/07).</i>			<i>12/31/07 update includes O&amp;M Sustainable Practices for existing buildings</i>	<i>12/31/07</i>
	<i>Existing building operations and maintenance guidelines in Appendix I.</i>	<i>Incorporate into update of O&amp;M Best Practices (Tiger Team initiative)</i>	<i>HHS Workgroup</i>	<i>6/30/08</i>	
	<i>Each OPDIV (landholders and non-landholders) incorporates Guiding Principles into their internal guidance.</i>	<i>OPDIVs quarterly update Appendix J to reflect current status of IP implementation. Status report semi-annual to OFEE/OMB.</i>	<i>OPDIVs</i>	<i>6/30/08 status report</i>	
Develop an Existing Building Strategy—which identifies priority facilities and environmental aspects (including energy use and IEQ), addresses minor renovations, and utilizes recommissioning as a tool—in order to identify and implement opportunities to incorporate the <i>Guiding Principles</i> into the existing building stock. Ensure the strategy is signed by senior officials.	<i>Developed a framework for Existing Building Strategy for OPDIVs to incorporate in FY09 budget submittal (reflected in Appendix H).</i>	<i>Re-commissioning on 5-10 year basis, consistent with occupancy of building as well as ongoing improvements to improve the quality of the indoor work environment under consideration.</i>	<i>HHS Workgroup</i>	<i>12/31/07 update (policy only)</i>	<i>12/31/07 update (policy only)</i>
	<i>Pre-budget guidance for FY09 budget cycle issued incorporating framework for an Existing Building Strategy (3/1/07).</i>	<i>Modify assessment tool as a result of pilot. Finalize Existing Building Strategy.</i>	<i>HHS Workgroup</i>	<i>6/30/08</i>	
	<i>Incorporated local &amp; regional factors in assessment tool. Identified projects for pilot (NIH</i>				

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	<i>laboratory &amp; office).</i>				
Develop a strategy to address sustainability opportunities for those buildings that agencies have determined “Not applicable” to all of the 5 Guiding Principles.	<p><i>Initial definition of applicable projects and performance targets for incorporating Guiding Principles outlined in Appendices D &amp; F.</i></p> <p><i>Existing housing identified as exception to all 5 Guiding Principles.</i></p> <p><i>All other projects, the Sustainability Checklist captures exceptions to the Guiding Principles on a case by case basis.</i></p>	<p><i>Discussion defining opportunities for incorporating Guiding Principles into existing housing ongoing.</i></p> <p><i>Review sustainability checklists from FY07 process to evaluate projects that could not meet all 5 Guiding Principles.</i></p>	<p><i>HHS workgroup</i></p> <p><i>HHS workgroup</i></p>	<p><i>Revised 6/30/08</i></p> <p><i>6/30/08 revise checklist as necessary</i></p>	<i>3/1/07 (Appendices D&amp;F)</i>
Correct other programmatic shortfalls identified in the gap analysis.	<i>Pending definition of Existing Building Strategy.</i>	<i>Update HHS Facilities Program Manual to incorporate sustainability requirements. Requires coordination with updates from PMA Tiger Team initiatives.</i>	<i>OFMP</i>	<i>Revised 12/31/08</i>	
<b>TRACKING AND REPORTING</b>					
Report the success and lessons learned for at least one major building project into High Performance Federal Buildings database annually.	<p><i>Projects identified for 2007 entry:</i></p> <ul style="list-style-type: none"> <li><i>• CDC B21 HQ and Operations Center</i></li> <li><i>• NIH B50 Laboratory</i></li> </ul>	<i>Add B110 CDC and Lawton</i>	<p><i>OPDIVs</i></p> <p><i>CDC/IHS</i></p>	<p><i>6/30/07</i></p> <p><i>6/30/08</i></p>	<i>6/30/07</i>

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<a href="http://www.eere.energy.gov/femp/highperformance/index.cfm">http://www.eere.energy.gov/femp/highperformance/index.cfm</a>	<ul style="list-style-type: none"> <li>• <i>NIH Gateway Center Non-sensitive project information only entered into database.</i></li> </ul>	<i>Indian Hospital</i>			
<p>Define the unit of measurement for tracking/reporting agency progress (# of certified buildings, etc.).</p> <p>Establish a baseline for energy use, water use, and other goals per the <i>Guiding Principles</i>.</p>	<p><i>Units of measurement incorporated into progress report format in Appendix M.</i></p> <p><i>Captured inventory for baseline application from 2007 FRPP data in Appendix L.</i></p>	<i>Progress format to be reevaluated to assess if correct measures are being captured to ensure accurate assessment of existing facilities meeting the Guiding Principles.</i>	<i>HHS Workgroup</i>	<i>12/31/07 6/30/08 revise reporting format</i>	<i>12/31/07</i>
<p>Institute measurement, verification, and training to ensure continual improvement. Clearly define how the M/V will be used. Extend commissioning to training of operations and management staff. Clearly define these expectations in contract language.</p>	<i>OPDIVs defined current measurement methodologies within Appendix J being used.</i>	<i>Guidance from ISWG subgroup developing measurement and verification.</i>	<i>HHS Workgroup</i>	<i>6/30/08</i>	
<p>Develop semi-annual system for reporting Agency progress towards addressing the <i>Guiding Principles</i> in all building life cycle stages:</p> <ul style="list-style-type: none"> <li>• Siting</li> <li>• Design</li> <li>• Construction</li> <li>• Operations &amp; maintenance</li> <li>• Renovation</li> <li>• End of life</li> </ul>	<p><i>Checklists for capturing project specific data complete (5/11/07).</i></p> <p><i>2007 report format distributed (6/13/07).</i></p>	<i>Progress format to be reevaluated to assess if correct measures are being captured to ensure accurate assessment of existing facilities meeting the Guiding Principles.</i>	<i>HHS Workgroup</i>	<i>6/30/07 6/30/08 revise reporting format</i>	<i>6/30/07</i>

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Report Agency progress toward incorporating the <i>Guiding Principles</i> in all building life cycle stages: <ul style="list-style-type: none"> <li>• Siting</li> <li>• Design</li> <li>• Construction</li> <li>• Operations &amp; maintenance</li> <li>• Renovation (and associated decommissioning)</li> <li>• End of life (and associated decommissioning)</li> </ul>	<i>First progress report due incorporated into 12/31/07 update of Sustainable Buildings Implementation Plan, Appendix M</i>	<i>Semi-annual report of progress to OFEE/OMB</i>	<i>HHS Workgroup</i>	<i>12/31/07 6/30/08 status report</i>	<i>12/31/07</i>

**APPENDIX A**  
**Federal Leadership in High Performance and Sustainable Buildings**  
**Memorandum of Understanding**

**FEDERAL LEADERSHIP IN HIGH PERFORMANCE and SUSTAINABLE**  
**BUILDINGS**  
**MEMORANDUM OF UNDERSTANDING**

**PURPOSE:** With this Memorandum of Understanding (MOU), signatory agencies commit to federal leadership in the design, construction, and operation of High-Performance and Sustainable Buildings. A major element of this strategy is the implementation of common strategies for planning, acquiring, siting, designing, building, operating, and maintaining High Performance and Sustainable Buildings. The signatory agencies will also coordinate with complementary efforts in the private and public sectors.

**BACKGROUND AND FEDERAL POLICY:** The Federal government owns approximately 445,000 buildings with total floor space of over 3.0 billion square feet, in addition to leasing an additional 57,000 buildings comprising 374 million square feet of floor space. These structures and their sites affect our natural environment, our economy, and the productivity and health of the workers and visitors that use these buildings.

Therefore, the Federal government is committed to designing, locating, constructing, maintaining, and operating its facilities in an energy efficient and sustainable manner that strives to achieve a balance that will realize high standards of living, wider sharing of life's amenities, maximum attainable reuse and recycling of depletable resources, in an economically viable manner, consistent with Department and Agency missions. In doing so and where appropriate, we encourage the use of life cycle concepts, consensus-based standards, and performance measurement and verification methods that utilize good science, and lead to sustainable buildings.

**GOALS AND OBJECTIVES OF THIS MOU:** Consistent with and in addition to Federal policy, statutes, executive orders and supplemental agency policies and guidance, the Parties to this MOU collaboratively seek to establish and follow a common set of sustainable Guiding Principles (attached) for integrated design, energy performance, water conservation, indoor environmental quality, and materials aimed at helping Federal agencies and organizations:

- Reduce the total ownership cost of facilities;
- Improve energy efficiency and water conservation;
- Provide safe, healthy, and productive built environments; and,
- Promote sustainable environmental stewardship.

**OTHER LAWS AND MATTERS:** This MOU is for internal management purposes of the Parties involved. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any of the signatories. This MOU shall not be construed to provide a private right or cause of action for or by any person or entity. This MOU in no way restricts the Parties from participating in any activity with other public or private agencies, organizations or individuals.

**APPENDIX A**  
**Federal Leadership in High Performance and Sustainable Buildings**  
**Memorandum of Understanding**

The Parties mutually recognize and acknowledge that MOU implementation will be subject to financial, technical, and other mission-related considerations. It is not intended to create any rights, benefits, or trust responsibilities, either substantive or procedural, nor is it enforceable in law by a party against the US, its agencies, its officers, or any other person.

Collaboration under this MOU will be in accordance with applicable statutes and regulations governing the respective Parties. Nothing in this MOU is intended to affect existing obligations or other agreements of the Parties.

**EFFECTIVE PERIOD:** This MOU will become effective upon signature. It shall remain in effect unless otherwise modified or terminated. Any Party may withdraw upon 30 days written notification to the others.

**MODIFICATIONS:** This MOU can be modified through mutual written agreement among the Parties.

**ADMINISTRATION:** Agencies will strive to incorporate and adopt, as appropriate and practical, the attached *Guiding Principles* into existing agency policy and guidance within 180 days of signature. To assist with this effort, the Interagency Sustainability Working Group (ISWG) will provide technical guidance and updates for the *Guiding Principles*.

The Office of the Federal Environmental Executive will work with the ISWG and Federal Green Building Council to develop methods of reporting on progress towards this MOU in a manner that is least burdensome to the agencies. This may include incorporating reporting into existing mechanisms, such as executive order reports; but in any case with a goal of avoiding a separate reporting process.



**APPENDIX A**  
**Federal Leadership in High Performance and Sustainable Buildings**  
**Memorandum of Understanding**

**GUIDING PRINCIPLES**  
**FOR**  
**FEDERAL LEADERSHIP IN HIGH PERFORMANCE AND SUSTAINABLE**  
**BUILDINGS**

**I. Employ Integrated Design Principles**

**Integrated Design.** Use a collaborative, integrated planning and design process that

- Initiates and maintains an integrated project team in all stages of a project's planning and delivery;
- 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.** Employ total building 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 a designated commissioning authority, 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.

**II. Optimize 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<sup>®</sup> targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.

**Measurement and Verification.** In accordance with DOE guidelines issued under section 103 of the Energy Policy Act of 2005 (EPAct), install building level utility meters in new major construction and renovation projects to track and continuously optimize performance. Compare actual performance data from the first year of operation with the energy design target. After one year of occupancy, measure all new major installations using the Energy Star<sup>®</sup> Benchmarking Tool for building and space types covered by Energy Star<sup>®</sup>. Enter data and lessons learned from sustainable buildings into the High Performance Buildings Database.

([www.eere.energy.gov/femp/highperformance/index.cfm](http://www.eere.energy.gov/femp/highperformance/index.cfm))

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**III. Protect and Conserve Water**

**Indoor Water.** Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.

**Outdoor Water.** Use water-efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.

**IV. Enhance Indoor Environmental Quality**

**Ventilation and Thermal Comfort.** Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, 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 and mold contamination.

**Daylighting.** Achieve a minimum of daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.

**Low-Emitting Materials.** Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, 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, 1995. 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. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.

**V. Reduce Environmental Impact of Materials**

**Recycled Content.** For EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

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**Biobased Content.** For USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.

**Construction Waste.** During a project's planning stage, identify local recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 50 percent construction, demolition and land clearing waste, excluding soil, where markets or on-site 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 life cycle impacts.

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**SIGNATORIES**

The undersigned individuals hereby execute this MOU on behalf of their respective agencies. The Parties envision that other Federal agencies may wish to join this MOU. The Parties encourage all Federal agencies that support the MOU goals and objectives to do so by signing the MOU and applying the *Guiding Principles*.



**Philip W. Grone**

Deputy Under Secretary of Defense for Installations and Environment  
Department of Defense

24 January 2006  
Date



**Douglas L. Faulkner**

Acting Assistant Secretary for Energy Efficiency and Renewable Energy  
Department of Energy

24 January 06  
Date



**David L. Winstead**

Commissioner, Public Buildings Service  
General Services Administration

24 January '06  
Date



**Robert J. Henke**

Assistant Secretary for Management  
Office of Management  
Department of Veterans Affairs

2/28/06  
Date

**APPENDIX A**  
**Federal Leadership in High Performance and Sustainable Buildings**  
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**P. Lynn Scarlett**  
Deputy Secretary  
Department of the Interior

1-25-06  
Date



**Ronald L. Deacon**  
Director, Facilities and Administrative Services  
Department of Justice

1-24-2006  
Date



**Thomas C. Dorr**  
Under Secretary for Rural Development  
Department of Agriculture

1-23-2006  
Date



**Olga M. Dominguez**  
Deputy Assistant Administrator for Infrastructure  
and Administration  
National Aeronautics and Space Administration

1/23/2006  
Date



**Donald Bathurst**  
Chief Administrative Services Officer  
Department of Homeland Security

1/29/2006  
Date

**APPENDIX A**  
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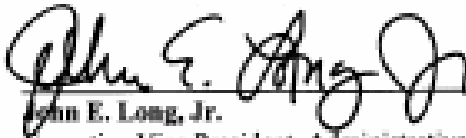
**William C. Stamper**  
Deputy Assistant Secretary  
Office for Facilities Management & Policy  
Department of Health and Human Services

1/24/06  
Date



**Linda J. Washington**  
Deputy Assistant Secretary for Administration,  
Department of Transportation

1/24/06  
Date



**John E. Long, Jr.**  
Executive Vice President, Administrative Services  
Tennessee Valley Authority

2-6-06  
Date



**Luis A. Luna**  
Assistant Administrator  
Administration And Resources Management  
Environmental Protection Agency

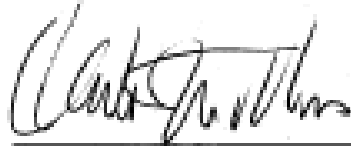
1/24/06  
Date



**Henrietta H. Fore**  
Under Secretary of State for Management  
Department of State

3.6.06  
Date

**APPENDIX A**  
**Federal Leadership in High Performance and Sustainable Buildings**  
**Memorandum of Understanding**



**General Charles E. Williams**  
Director/COO  
Overseas Buildings Operations  
Department of State

5/6/06  
Date



**Frank J. Coulter, Jr.**  
Deputy Assistant Secretary  
Representing the Agency Environmental Executive  
Department of State

1-24-06  
Date



**Keith Nelson**  
Assistant Secretary of Administration  
Department of Housing and Urban Development

3/12/06  
Date



**Ronald C. Fleam**  
Associate Director, Management Services Division  
Office of Personnel Management

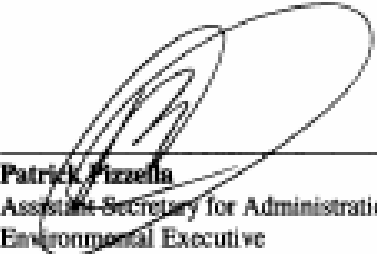
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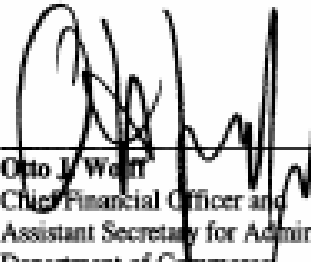
**Bryan Harbigan**  
Chief of Staff,  
Council on Environmental Quality  
Executive Office of the President

1/24/06  
Date

**APPENDIX A**  
**Federal Leadership in High Performance and Sustainable Buildings**  
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\_\_\_\_\_  
**Patrick Pizzella**  
Assistant Secretary for Administration and Management,  
Environmental Executive  
Department of Labor

*2/2/06*  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
**Otto J. Wolf**  
Chief Financial Officer and  
Assistant Secretary for Administration,  
Department of Commerce

*02-23-06*  
\_\_\_\_\_  
Date



**APPENDIX B**  
**Guidance for Measuring Sustainable Building Program Implementation Progress**

Sustainable design/green building is a relatively new issue for some agencies without the structure and mandates of other environmental initiatives. In light of this, OFEE facilitated the ISWG in establishing ‘milestones and deliverables’ that will allow Agencies to measure their progress towards implementing the Federal Leadership in High Performance and Sustainable Buildings MOU.

<b><u>Phase</u></b>	<b><u>Recommended Milestones and Deliverables for Measuring Progress</u></b>
<b>1</b>	<ul style="list-style-type: none"> <li>• Issue Sustainable Design/Green Buildings Policy and Implementation Plan that:               <ul style="list-style-type: none"> <li>-Defines applicable building projects (i.e., new buildings, leases, build-to-lease projects, and major and minor renovations) based on building type, size, and/or budget.</li> <li>-Complies with OMB Circular A-11 Part 7 Section 300 - Planning, Budgeting, Acquisition, and Management of Capital Assets.</li> </ul> </li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>• Key programmatic framework activities are implemented including: policies, responsibilities, tracking, measurement, and funding requests.</li> <li>• Agency employs integrated teams at the earliest stages of project planning (i.e., pre-funding, conceptual design) for all capital asset projects involving new buildings, build-to-lease, and/or major renovations in order to address the Guiding Principles, except where written justification is provided.</li> <li>• The success stories and lessons learned for at least one major building project are reported into the High Performance Federal Buildings Database (&lt;<a href="http://www.eere.energy.gov/femp/highperformance/index.cfm">www.eere.energy.gov/femp/highperformance/index.cfm</a>&gt;) (provided the agency has an applicable project to report).</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>• All applicable ‘new start’ capital asset projects involving new buildings, build-to-lease, and/or major renovations incorporate the Guiding Principles, except where written justification is provided.</li> <li>• In order to apply the Guiding Principles to “in process” building projects, all business cases for new building construction or major renovations, developed per OMB A-11 Part 7 Section 300, incorporate the Guiding Principles, to the greatest extent practicable.</li> <li>• In order to maximize opportunities for incorporating the Guiding Principles into existing buildings, an Existing Building Strategy—which identifies priority facilities and environmental aspects (including energy use and IEQ), addresses minor renovations, and utilizes recommissioning as a tool—is developed and signed by senior officials.</li> </ul>
<b>4</b>	<ul style="list-style-type: none"> <li>• At least 5 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> </ul>
<b>5</b>	<ul style="list-style-type: none"> <li>• At least 10 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> <li>• At least 2 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.</li> </ul>
<b>6</b>	<ul style="list-style-type: none"> <li>• At least 25 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> <li>• At least 3 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.</li> </ul>
<b>7</b>	<ul style="list-style-type: none"> <li>• At least 40 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> <li>• At least 6 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.</li> </ul>

**APPENDIX B**  
**Guidance for Measuring Sustainable Building Program Implementation Progress**

<u>Phase</u>	<u>Recommended Milestones and Deliverables for Measuring Progress</u>
<b>8</b>	<ul style="list-style-type: none"> <li>• At least 60 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> <li>• At least 9 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.</li> </ul>
<b>9</b>	<ul style="list-style-type: none"> <li>• At least 80 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> <li>• At least 12 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.</li> </ul>
<b>10</b>	<ul style="list-style-type: none"> <li>• 100 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.</li> <li>• At least 15 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.</li> </ul>



## APPENDIX C

# HHS Policy for Sustainable and High Performance Buildings

## Table of Contents

1. Purpose
2. Background
3. Policy
4. Scope
5. Role and Responsibilities
6. Information and Assistance
7. Effective Date

### **1. PURPOSE**

To promote the health of the public and our employees and minimize potential impacts of our mission activities on the environment, each Operating Division (OPDIV) of the Department of Health and Human Services (HHS) will incorporate sustainable and high-performance design principles in the planning, acquiring, siting, designing, building, operating, maintaining and decommissioning of all facilities.

### **2. BACKGROUND**

In January 2006, HHS joined 18 other federal agencies and authorities in signing the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) at the White House Summit on Federal Sustainable Buildings. A provision of that MOU was to establish implementation strategy within 180 days of the date of signature. The Executive Order 13327 – Federal Real Property Asset Management and the HHS Real Property Asset Management Plan call for the Department to establish a sustainability policy.

In September 2006, the Department issued its initial policy for Sustainable and High Performance Buildings. In December 2006, the Department issued its initial plan for implementing the policy.

In January 2007, Executive Order 13423 – Strengthening Federal Environmental, Energy, and Transportation Management required Agencies to incorporate sustainable practices consistent with the MOU Guiding Principles.

As outlined in the MOU, sustainability is the outcome of an integrated process of facility development incorporating a balance of life-cycle cost, environmental impact and occupant health and safety, security, and productivity. The *Guiding Principles* of sustainable design contained in the MOU are:



## APPENDIX C

# HHS Policy for Sustainable and High Performance Buildings

- Employ Integrated Design Principles
  - Integrated Design
  - Commissioning
- Optimize Energy Performance
  - Energy Efficiency
  - Measurement and Verification
- Protect and Conserve Water
  - Indoor Water
  - Outdoor Water
- Enhance Indoor Environmental Quality
  - Ventilation and Thermal Comfort
  - Moisture Control
  - Daylighting
  - Low-Emitting Materials
  - Protect Indoor Air Quality during Construction
- Reduce Environmental Impact of Materials
  - Recycled Content
  - Bio-based Content
  - Construction Waste
  - Ozone Depleting Compounds

This update to the policy incorporates the Department's implementation strategy and the requirements of E.O. 13423.

### 3. POLICY

3.1 All construction<sup>1</sup> projects will incorporate the *Guiding Principles* of the MOU into the planning, design, construction, operation, maintenance, and decommissioning processes. Construction projects under the scope of this policy, which have a total project cost equal to or greater than \$3 million, will obtain certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED<sup>TM</sup>) or the Green Building Initiative's Green Globes<sup>TM</sup> System.

3.2 Existing facilities will incorporate the *Guiding Principles* of the MOU to the maximum extent feasible in all improvement, repair and maintenance projects. In addition to incorporating the *Guiding Principles* of the MOU, improvements and repair projects, which have a total project cost equal to or greater than \$10 million and/or impacting 40% or more of the overall floor area, will obtain certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED<sup>TM</sup>) or the Green Building Initiative's Green Globes<sup>TM</sup> System.

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<sup>1</sup> Construction includes new buildings, additions and build-to-lease buildings as defined in the HHS Facilities Program Manual, Volume 1, 19 May 2006.



## APPENDIX C

# HHS Policy for Sustainable and High Performance Buildings

In addition, existing buildings shall be assessed for compliance with the *Guiding Principles* of the MOU to ensure that 15% or more of the HHS capital asset building inventory incorporates the sustainable practices in the *Guiding Principles* by FY 2015. The HHS capital asset building threshold for incorporating sustainable practices in existing buildings is 5,000 gross square feet or more, excluding housing. HHS will develop a strategy to incorporate sustainable practices into housing.

3.3 All new lease actions<sup>2</sup> 5,000 useable square feet (usf) or more will incorporate the *Guiding Principles* of the MOU to the maximum extent feasible. New lease actions under 5,000 usf will consider the *Guiding Principles* as one criterion for lease evaluation.

Requests for waivers shall be considered on a case-by-case basis for individual projects. The Deputy Assistant Secretary, Office for Facilities Management and Policy, Office of the Assistant Secretary for Administration and Management (OFMP/ASAM) must approve waivers and any other exceptions to the provisions of this policy as required by E.O. 13423.

3.4 To the maximum extent feasible sustainable design practices shall be considered in the design requirements for facilities funded through extramural construction grants of \$1 million or more.

## 4. SCOPE

This policy for Sustainable and High Performance Buildings applies to all buildings under the control of the Department and all OPDIVs, including all buildings that are reported in the HHS Automated Real Property Inventory System (ARIS), whether owned or leased and operated by HHS, or operated on behalf of HHS. This policy does not apply to tribally owned and operated buildings under the authorities of P.L. 93-638.

## 5. ROLES AND RESPONSIBILITIES

5.1 Deputy Assistant Secretary, Office for Facilities Management and Policy, Office of the Assistant Secretary for Administration and Management

The HHS Office for Facilities Management and Policy will serve as the principal point of contact for sustainable design and construction activities and will:

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<sup>2</sup> Lease actions include all new leases, renewals, extensions, permits, agreements, or licenses for real property assets that are reported in the HHS Automated Real Property Inventory System.



## APPENDIX C

# HHS Policy for Sustainable and High Performance Buildings

- a. Monitor compliance with this policy for all capital assets as defined in OMB Circular A-11 Part 7.
- b. Review and approve exceptions to this policy for capital assets through the Facilities Project Approval Agreement (FPAA) documentation.
- c. Conduct an annual Lessons Learned workshop to address sustainability and its application in HHS projects.

### 5.2 Operating Divisions (OPDIVs)

Individual OPDIVs will manage the planning, design, construction, operation, maintenance, and decommissioning of their buildings to ensure compliance with this policy. Each OPDIV shall develop a plan that includes:

- a. Policies, procedures and plans to ensure compliance with this policy and the Department's Implementation Plan and Guidelines associated with this policy.
- b. A data collection mechanism that ensures the reporting requirements of this policy are achieved.
- c. A self audit process to assess the OPDIV's implementation progress and compliance with this policy.
- d. Documentation of sustainability on individual projects and leases through the FPAA and/or sustainability Checklists.

## 6. INFORMATION AND ASSISTANCE

### 6.1 Executive Orders and Statutes

Executive Order 13327: Federal Real Property Asset Management

Executive Order 13423: Strengthening Federal Environmental, Energy, and Transportation Management

Energy Policy Act of 2005 (EPAAct 2005)

### 6.2 Other Directives

OMB Circular A-11, Part 7, Planning, Budgeting, Acquisition, and Management of Capital Assets

The Federal Leadership in High Performance and Sustainable Buildings, Memorandum of Understanding



## APPENDIX C

# HHS Policy for Sustainable and High Performance Buildings

Affirmative Procurement Plan, Purchasing Environmentally Preferable Products and Services at the Department of Health & Human Services - <http://intranet.hhs.gov/environmental/documents/APPMay2007.doc>

### 6.3 Assistance

FedCenter - [www.fedcenter.gov](http://www.fedcenter.gov)

US Green Building Council – [www.usgbc.org](http://www.usgbc.org)

Office of the Federal Environmental Executive – [www.OFEE.gov](http://www.OFEE.gov)

Whole Building Design Guide – [www.wbdg.org](http://www.wbdg.org)

EO 13423 Technical guidance for Implementing the Five Guiding Principle for Federal Leadership in High Performance and Sustainable Design – [www.wbdg.org/sustainableEO/](http://www.wbdg.org/sustainableEO/)

Green Globes™/MOU Mapping Guide – [www.thegbi.org/assets/pdfs/MappingTheEnvironmentalExecutiveObjectiveAndGreenGlobesV1.pdf](http://www.thegbi.org/assets/pdfs/MappingTheEnvironmentalExecutiveObjectiveAndGreenGlobesV1.pdf)

LEED™/MOU Mapping Guide [www.wbdg.org/pdfs/mou\\_lead\\_guide.pdf](http://www.wbdg.org/pdfs/mou_lead_guide.pdf)

Green Building Initiative – [www.thegbi.org](http://www.thegbi.org)

Labs21 Environmental Performance Criteria – [www.labs21century.gov/toolkit/epc.htm](http://www.labs21century.gov/toolkit/epc.htm)

## 7. EFFECTIVE DATE/IMPLEMENTATION

This policy directive is effective upon date of signature and transmittal.

**APPENDIX D**  
**Definitions – Applicable Building Projects**

	<b>DEFINITIONS:</b>	<b>REQUIREMENTS:</b>
<b>CONSTRUCTION</b> All HHS projects meeting the definition of “construction” in the HHS Facilities Manual	New buildings	Must meet MOU requirements  \$3M or more: must be certified (Green Globes or LEED)
	Additions	
	Build-to-Lease: any building (not owned by HHS) built to HHS requirements or specifications	
<b>LEASES</b> Leased space of 5,000 or more usable square feet	GSA buildings (federally-owned), with Occupancy Agreements	Meet MOU to the maximum extent feasible. Monitor GSA-identified MOU and certification requirements: <ul style="list-style-type: none"> <li>• Include sustainability in SFO</li> <li>• Include sustainability in POR</li> <li>• Include sustainability in Award Factors</li> </ul> For <b>Delegated Buildings</b> , ensure that MOU is incorporated to the maximum extent feasible in the O&M
	GSA leased (not federally-owned), with Occupancy Agreements	Meet MOU to the maximum extent feasible. Monitor GSA incorporation of MOU requirements: <ul style="list-style-type: none"> <li>• Include sustainability in SFO</li> <li>• Include sustainability in POR</li> <li>• Include sustainability in Award Factors</li> </ul>
	Direct leases	Meet MOU to maximum extent feasible: <ul style="list-style-type: none"> <li>• Include sustainability in SFO</li> <li>• Include sustainability in POR</li> <li>• Include sustainability in Award Factors</li> </ul>
<b>MAJOR RENOVATIONS</b> HHS-owned property	Improvements, Repair and Maintenance projects (as defined in the HHS Facilities Program Manual) of \$10M or more and/or impacting 40% or more of overall floor area	Must meet the MOU to the maximum extent feasible. In addition, Improvement and Repair projects must be certified (Green Globes or LEED)



**APPENDIX D**  
**Definitions – Applicable Building Projects**

	<i><b>DEFINITIONS:</b></i>	<i><b>REQUIREMENTS:</b></i>
<b>MINOR RENOVATIONS</b> HHS-owned property	Improvements, Repair and Maintenance projects (as defined in the HHS Facilities Program Manual) below the threshold for major renovations	Meet MOU to the maximum extent feasible.
<b>EXTRAMURAL CONSTRUCTION</b>	Grant funded programs	OPDIVs shall consider sustainability guidelines in their grant solicitations

## **APPENDIX E**

### **Integrated Project Team Definition and Project Charter**

Each project shall have a core Integrated Project Team (IPT) that shall be cross-functional to accomplish the various tasks of the project. Expertise required shall be based on specific project scope and size. Members should reflect the user community, the project's stakeholders and should have core knowledge of project management, budget, finance, sustainable design and procurement. An assessment shall be made of the availability of internal or external resources. The IPT shall be assembled according to the guidance provided in OMB Circular A-11, Section 7, Appendix 2. An IPT Charter, which outlines IPT membership and responsibilities, shall be created. If a Project Definition Rating Index (PDRI) assessment is required, core team members must participate.

#### **Integrated Project Team Definition**

For HHS-owned properties, the IPT shall be led by the Program Manager, Project Manager, or Team Leader (the first signatory on the FPAA). The IPT shall also include the Contracting Officer, a Sustainability Coordinator or Green Building Specialist (preferably one who is LEED certified), and a representative of the end user group. The IPT should also include stakeholders from Operations & Maintenance, Financial, Environmental, Health and Safety, Security, IT, and Facilities/Space Planning.

For delegated leased properties, the IPT shall be led by the warranted Contracting Officer. The IPT shall include the Project Officer, a Green Buildings Specialist (LEED certified), and a representative of the end user group. The IPT should also include stakeholders from Operations & Maintenance, Financial, Environmental, Health and Safety, Security, IT, and Facilities/Space Planning.

For GSA assignments, the GSA representative shall lead the IPT in the Contracting Officer capacity, and an OPDIV/STAFFDIV-appointed team leader (Acquisitions/ Project Officer) shall provide liaison and coordination for the IPT. The Contracting Officer and the HHS Team Leader shall assemble a team to include, but not limited to, the end user and representatives from GSA/HHS who are versed in Green Buildings, Operations & Maintenance, Financial, Environmental, Health and Safety, Security, IT, and Facilities/Space Planning. If resources are available, HHS should fill these roles since they are the primary stakeholders.

**APPENDIX E**  
**Integrated Project Team Definition and Project Charter**

**Charter – Leased Facilities**

*(This is a living document and will be updated as required.)*

**HHS Operating Division:** *(NIH, CDC, etc.)*

**Operating Division's Component:** *(occupant/end user)*

**Location of New Facility:** *(address)*

**Lease:** *(Lease Identification)*

**Description:** *(Purpose of Acquisition, i.e., New Program Initiative, New Hires, Support Space, Labs, etc.)*

**Date:** *(Date Prepared)*

**Revised Date:** *(Date Updated)*

**Prepared by:** *(Name/Title)*

**IPT Lead:** *(Name/Title)*

**Lease/Project Milestones:** *(Summarize or attach a schedule)*

**IPT:**

*List each team member and their responsibilities; provide contact information to include name, phone, fax, cell phone, e-mail, and mailing address. Team members and their responsibilities may include the following:*

- **Contracting Officer**  
For landholding Agency with Contracting Officers (CO), the CO is the lead, and develops Solicitation for Offer (SFO), and modifies, executes, and enforces the Lease, notwithstanding any other provisions of law.
- **Realty Specialist**  
Lease Administrator to include, but not limited to, preparing obligation document(s); negotiating on behalf of the government with the Lessor, processing invoices, etc. as approved by the Contracting Officer.
- **Project Manager**  
Responsible for representing the Agency in development of technical requirements to include, but not limited to, design and construction as it relates to the Program of Requirements and design documents. Project Manager (PM) will communicate with the Lessor representatives on technical requirements that are within scope, cost Not to Exceed (NTE), schedule and policy. Technical requirements that are outside of the scope, cost, schedule or policy must be approved by the Contracting Officer.
- **Occupant/End User Representative(s)**  
*(Usually Executive Officer or their designee.)*  
Responsible for commitment of rents throughout the term of the lease and funding all lump sum Government expenses related to the lease, informal communications and overall program requirements.

**APPENDIX E**  
**Integrated Project Team Definition and Project Charter**

- **Physical Security**  
Responsible for developing security requirements and incorporating them into the POR/SFO. Direct leases will require Security Officer lease concurrence prior to lease execution. Security requirements are per the ISC recommendations and should be identified in Section 9 of the Solicitation for Offer (SFO). Section 9 of the SFO is a template of security requirements requiring the Security Specialist to further define existing or build-to-lease requirements. Lessor will be responsible for coordinating schedule activities with Government vendors.
- **IT/Telecommunications**  
Responsible for developing data/telephone requirements as stated in the SFO, POR or attachment of standards. Lessor will be responsible for coordinating schedule activities with Government vendors.
- **Environmental Health and Safety (EHS) Specialist**  
Responsible for reviewing compliance with regulations and OPDIV requirements relating to EHS aspects of facility designs and facilities offered by lessors. The documentation may include, but is not limited to, design drawings; specifications; sampling and analysis data; reports from environmental audits, site assessments and surveys; air and other indoor environmental monitoring data; descriptions of safety and accessibility features; waste management plans; data on water and energy use relating to sustainability; reports from environmental audits, site assessments and surveys; and offers submitted by lessors.
- **Sustainability/Green Building Specialist**  
*(Preferably LEED™/Green Globes certified.)*  
Responsible for coordinating sustainability issues.
- **Procurement Specialist**  
Responsible for coordinating the purchase of services, materials and equipment in support of the project, i.e., fixtures, furnishings, equipment, moving services, etc.
- **Construction Quality Manager (CQM)**  
Per contract, is responsible for assisting the PM or COTR in the quality control of the technical requirements to include, but not limited to, design, construction, cost estimating and post construction/occupancy services specified in the CQM Scope of Work (SOW).
- **Lessor**  
Responsible for the performance of the Lease and any subsequent Supplemental Lease Agreements (SLA).
- **Lessor General Contractor(s)**  
As per the SFO, the Lessor is responsible for the performance of construction in accordance with the Lease.

## APPENDIX E

### Integrated Project Team Definition and Project Charter

- **Lessor Architect-Engineer**

As per the SFO, the Lessor is responsible for the design meeting all requirements under the SFO and local, state and federal codes.

**Communication Plan:**

*The IPT shall develop a communication plan addressing lines and methods of communications for information, approvals, changes, etc.*

- **Formal** is defined as any written agreement or notification that may result in a contractual modification or any changes to scope, budget and schedule. The IPT must review and concur with such modifications and changes. All contractual requirements that affect the POR, schedule, process and cost must have been reviewed by and have signature approval of the Contracting Officer and Lessor.
- **Informal** is defined as the everyday communication and dissemination of information that normally occurs via telephone or email. This should not result in any changes to scope, budget, schedule or process.

**Disputes:**

*The IPT shall develop a process for handling disputes within the IPT.*

**Risk Management Plan:**

*The IPT shall identify internal and external factors that require contingency planning or risk analysis and planning, and consider mitigation measures. Examples may include:*

- **Schedule**  
The IPT shall develop a project schedule and identify potential impacts to timely completion of the project. The construction schedule is made part of the Lease and will be updated as required and forwarded to appropriate parties.
- **Budget Estimate**  
The IPT shall develop a process to track project budget and expenditures.
- **Construction Services**  
The method for delivering the space shall be defined. The IPT shall develop specific requirements and timelines for the Lessor to minimize change orders, delay of the project and cost overruns.
- **Customer Management/Care issues**  
Through its communications plan the IPT shall identify and assess how to deal with day-to-day management of the project to ensure involvement of all stakeholders.

**Closeout:**

The IPT will perform a walkthrough of the substantially completed space and prepare a punch list for the Lessor. The Contracting Officer is responsible for acceptance of substantial completion and will consult with Project Manager and include a punch list with the sign off.

**APPENDIX E**  
**Integrated Project Team Definition and Project Charter**

**Charter – HHS Owned Facilities**

*(This is a living document and will be updated as required)*

**HHS Landholding Operating Division:** *(NIH, CDC, etc.)*

**Operating Division's Component:** *(occupant/end user)*

**Location of New Facility:** *(address)*

**Project:** *(Name of project, project number)*

**Description:** *(Purpose of Acquisition, i.e., New Program Initiative, New Hires, Support Space, Labs, etc.)*

**Date:** *(Date Prepared)*

**Revised Date:** *(Date Updated)*

**Prepared by:** *(Name/Title)*

**IPT Lead:** *(Name/Title)*

**Construction schedule:** *(Summarize or attach a schedule)*

**IPT:**

*List each team member and their responsibilities; provide contact information to include name, phone, fax, cell phone, e-mail, and mailing address. Team members and their responsibilities may include the following:*

- **Project Manager/Project Officer**  
Project Manager/Project Officer (PM/PO) leads IPT. PM/PO is responsible for coordinating all technical requirements including project planning and programming, project management through design and construction, and ensuring incorporation of all policies and guidelines. All design and construction requirements will be directed through the Project Manager to the Contractor unless there contractual change outside the scope, cost or schedule. The PM/PO will communicate regularly with the Contracting Officer to avoid any inadvertent changes to the contract terms.
  
- **Contracting Officer (CO)**  
Responsible for developing and executing contract instruments, coordinating source selection criteria, ensuring that evaluation plan is adhered to, receiving evaluation plan consensus in order to make an award according to the award factors, ensuring that funds are available, modifying and enforcing the contract, obligating funds on behalf of the government, negotiating on behalf of the government with the Contractor, authorizing on behalf of the government, and approving invoices and committing funds.
  
- **Occupant/End User Representative(s)**  
*Usually Executive Officer or their designee; may also include Finance Officer and/or Administrative Officer.)*  
Responsible for budgeting, overall program requirements, certifying funds availability and internal budget/finance coordination, and overall program requirements.

**APPENDIX E**  
**Integrated Project Team Definition and Project Charter**

- **Physical Security**  
Responsible for developing and incorporating physical security requirements that meet the ISC recommendations into the project. Physical security requirements may include shatter-resistant materials, progressive collapse requirements, etc.
- **IT/Telecommunications**  
Responsible for developing data/telephone requirements and coordinating with the construction schedule for cabling rough-in.
- **Environmental Health and Safety (EHS) Specialist**  
Responsible for reviewing compliance with regulations and OPDIV requirements relating to EHS aspects of facility design. The documentation may include, but is not limited to, design drawings; specifications; sampling and analysis data; reports from environmental audits, site assessments and surveys; air and other indoor environmental monitoring data; descriptions of safety and accessibility features; waste management plans; data on water and energy use relating to sustainability; and reports from environmental audits, site assessments and surveys.
- **Sustainability/Green Building Specialist**  
*(Preferably LEED™/Green Globes certified.)*  
Responsible for coordinating sustainability issues.
- **Operations & Maintenance**  
Responsible for ensuring that the building's infrastructure is designed and built to ensure overall operability and maintainability. Also a key player in commissioning and ensuring proper systems documentation at project turnover.
- **Procurement Specialist**  
Responsible for coordinating the purchase of services, materials and equipment in support of the project, i.e., fixtures, furnishings, equipment, moving services, etc.
- **Real Property Acquisition Officer**  
Responsible for property acquisition and/or changes to the property.
- **Construction Quality Manager (CQM)**  
Per contract, is responsible for assisting the CO by performing the pre-design, design, procurement, construction phase, and post-construction claims services specified in the CQM contract, and for maintaining working relationship with the architect-engineer and construction contractor(s). The CQM is not responsible for duties of other government contracts listed below, such as architect-engineer or construction contractor(s).
- **Architect-Engineer**  
Responsible for designing the project, and for performing all design-related services in accordance with its government contract.

## APPENDIX E

### Integrated Project Team Definition and Project Charter

- **Construction Contractor(s)**

Responsible for constructing (means, methods, sequence and procedures used in the construction project), and for related performance in accordance with its government contract.

**Communication Plan:**

*The IPT shall develop a communication plan addressing lines and methods of communications for information, approvals, changes, etc.*

- **Formal** is defined as any written agreement or notification that may result in a contractual modification or any changes to scope, budget and schedule. The IPT must review and concur with such modifications and changes. All contractual requirements that affect the POR, schedule, process and cost must have been reviewed by and have signature approval of the Project Officer, Contracting Officer and Contractor.
- **Informal** is defined as the everyday communication and dissemination of information that normally occurs via telephone or email. This should not result in any changes to scope, budget, schedule or process.

**Disputes:**

*The IPT shall develop a process for handling disputes within the IPT.*

**Risk Management Plan:**

*The IPT shall identify internal and external factors that require contingency planning or risk analysis and planning, and consider mitigation measures. Examples may include:*

- **Schedule**  
The IPT shall develop a project schedule and identify potential impacts to timely completion of the project. The construction schedule is made part of the construction contract and will be updated as required and forwarded to appropriate parties.
- **Budget Estimate**  
The IPT shall develop a process to track project budget and expenditures.
- **Construction Services**  
The method for delivering the space shall be defined. The IPT shall develop specific requirements and timelines for the A/E and Construction Contractor to minimize change orders, delay of the project and cost overruns.
- **Customer Management/Care issues**  
Through its communications plan the IPT shall identify and assess how to deal with day-to-day management of the project to ensure involvement of all stakeholders.

**Closeout:**

The IPT will perform a walkthrough of the substantially completed space and prepare a punch list for the Contractor. The Contracting Officer and/or Project Officer are responsible for acceptance of substantial completion and will consult with Project Manager and include a punch list with the sign off.



**APPENDIX F**  
**Sustainability Performance Targets**

*Performance goals in the MOU not defined herein as mandatory shall be considered by the IPT for incorporation based on the specific scope of the project*

	<b>DEFINITIONS:</b>	<b>REQUIREMENTS:</b>	<b>APPLICATIONS:</b>	<b>MANDATORY GOALS</b>
<b>CONSTRUCTION</b> All HHS projects meeting the definition of “construction” in the HHS Facilities Manual	New buildings	Must meet all MOU requirements  \$3M or more: must be certified (Green Globes or LEED)	All new capital project starts not previously submitted to OMB, FY 2007 and forward	<ul style="list-style-type: none"> <li>• Integrated Design including Integrated Project Team (IPT), performance goals and Life Cycle Cost analysis</li> <li>• Commissioning</li> <li>• Energy performance (EPA 2005 and EO 13423)</li> <li>• Water conservation (EO 13423)</li> <li>• Ventilation &amp; Thermal Comfort</li> <li>• Moisture control</li> <li>• Daylighting</li> <li>• Low-emitting materials</li> <li>• Indoor air quality during construction</li> <li>• Recyclable content</li> <li>• Biobased content</li> <li>• Construction waste</li> <li>• Ozone depleting compounds</li> </ul>
	Additions			
	Build-to-Lease: any building (not owned by HHS) built to HHS requirements or specifications			
<b>LEASES</b> Leased space of 5,000 or more usable square feet	GSA buildings (federally-owned), with Occupancy Agreements	Monitor GSA-identified MOU and certification requirements: <ul style="list-style-type: none"> <li>• Include sustainability in SFO</li> </ul>	All new leases initiated in FY 2008 and forward, with approved Business Case	<ul style="list-style-type: none"> <li>• IPT</li> <li>• Energy performance (EPA 2005 and EO 13423)</li> <li>• Water conservation</li> </ul>

**APPENDIX F**  
**Sustainability Performance Targets**

*Performance goals in the MOU not defined herein as mandatory shall be considered by the IPT for incorporation based on the specific scope of the project*

	<b>DEFINITIONS:</b>	<b>REQUIREMENTS:</b>	<b>APPLICATIONS:</b>	<b>MANDATORY GOALS</b>
		<ul style="list-style-type: none"> <li>• Include sustainability in POR</li> <li>• Include sustainability in Award Factors</li> </ul> <p>For <b>Delegated Buildings</b>, ensure that MOU is incorporated to the maximum extent feasible in the O&amp;M</p>		(EO 13423) <ul style="list-style-type: none"> <li>• Ventilation &amp; Thermal Comfort</li> <li>• Moisture control</li> <li>• Low-emitting materials</li> <li>• Indoor air quality during construction</li> <li>• Recycled content</li> <li>• Biobased content</li> <li>• Construction waste</li> <li>• Ozone depleting compounds</li> </ul>
	GSA leased (not federally-owned), with Occupancy Agreements	Monitor GSA incorporation of MOU requirements: <ul style="list-style-type: none"> <li>• Include sustainability in SFO</li> <li>• Include sustainability in POR</li> </ul> Include sustainability in Award Factors		<ul style="list-style-type: none"> <li>• IPT</li> <li>• Energy performance (EPAAct 2005 and EO 13423)</li> <li>• Water conservation plan</li> <li>• Ventilation &amp; Thermal Comfort</li> <li>• Moisture control</li> <li>• Low-emitting materials</li> <li>• Indoor air quality during construction</li> <li>• Recycled content</li> <li>• Biobased content</li> <li>• Construction waste</li> <li>• Ozone depleting compounds</li> </ul>
	Direct leases	Meet MOU to maximum extent feasible: <ul style="list-style-type: none"> <li>• Include</li> </ul>		<ul style="list-style-type: none"> <li>• IPT</li> <li>• Energy performance (EPAAct 2005 and</li> </ul>

**APPENDIX F**  
**Sustainability Performance Targets**

*Performance goals in the MOU not defined herein as mandatory shall be considered by the IPT for incorporation based on the specific scope of the project*

	<b>DEFINITIONS:</b>	<b>REQUIREMENTS:</b>	<b>APPLICATIONS:</b>	<b>MANDATORY GOALS</b>
		sustainability in SFO <ul style="list-style-type: none"> <li>• Include sustainability in POR</li> <li>• Include sustainability in Award Factors</li> </ul>		EO 13423) <ul style="list-style-type: none"> <li>• Water conservation plan</li> <li>• Ventilation &amp; Thermal Comfort</li> <li>• Moisture control</li> <li>• Low-emitting materials</li> <li>• Indoor air quality during construction</li> <li>• Recycled content</li> <li>• Biobased content</li> <li>• Construction waste</li> <li>• Ozone depleting compounds</li> </ul>
<b>MAJOR RENOVATIONS</b> HHS-owned property	Improvements, Repair and Maintenance projects (as defined in the HHS Facilities Program Manual) of \$10M or more and/or impacting 40% or more of overall floor area	Must meet the MOU to the maximum extent feasible. In addition, Improvement and Repair projects must be certified (Green Globes or LEED)	All new projects initiated in FY 2007 and forward, which did not have an approved FPAA as of March 2007.  (Similar to application of ADA – the element or area of work repaired or improved must meet the requirements, not the entire system.)	<ul style="list-style-type: none"> <li>• IPT</li> <li>• Energy performance (EPA Act 2005 and EO 13423)</li> <li>• Water conservation (EO 13423)</li> <li>• Ventilation &amp; Thermal Comfort</li> <li>• Moisture control</li> <li>• IAQ during construction</li> <li>• Recycled content</li> <li>• Biobased content</li> <li>• Construction waste</li> <li>• Ozone depleting compounds</li> </ul>
<b>MINOR</b>	Improvements, Repair	Meet MOU to the maximum	All new projects initiated	<ul style="list-style-type: none"> <li>• IPT</li> <li>• Energy</li> </ul>

**APPENDIX F**  
**Sustainability Performance Targets**

*Performance goals in the MOU not defined herein as mandatory shall be considered by the IPT for incorporation based on the specific scope of the project*

	<b>DEFINITIONS:</b>	<b>REQUIREMENTS:</b>	<b>APPLICATIONS:</b>	<b>MANDATORY GOALS</b>
<b>RENOVATIONS</b> HHS-owned property	and Maintenance projects (as defined in the HHS Facilities Program Manual) below the threshold for major renovations	extent feasible.	in FY 2008 and forward, which do not have an approved FPAA as of the date of issuance of the revised Implementation Plan.  (Similar to application of ADA – the element or area of work repaired or improved must meet the requirements, not the entire system.)	performance (EPA Act 2005 and EO 13423) <ul style="list-style-type: none"> <li>• Water conservation (EO 13423)</li> <li>• Ventilation &amp; Thermal Comfort</li> <li>• Moisture control</li> <li>• IAQ during construction</li> <li>• Recycled content</li> <li>• Biobased content</li> <li>• Construction waste</li> <li>• Ozone depleting compounds</li> </ul>
<b>EXTRAMURAL CONSTRUCTION</b>	Construction projects with a grant award amount of \$1M or more	OPDIVs shall consider sustainability guidelines in their grant solicitations	All new grant applications in FY 2009 and forward.	

**APPENDIX G**  
**(1) Sustainability Checklist for Leased Properties**

Applies to:

- GSA assignments and Direct Leases of 5,000 or more usable square feet
- All new direct lease actions and GSA assignments initiated in 2008 and beyond, with approved Business Case

<b>Mandated Requirements:</b>	<b>Requirement Definition:</b>	<b>How Is Requirement Met?</b>
Integrated Project Team (IPT)	Initiates and maintains an integrated project team in all stages of a project's planning and delivery.	
Energy Performance (EPAct 2005 and E.O. 13423)	<p>Establish a whole building performance target that takes into account the five <i>Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings</i> and earns the Energy Star® targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the ASHRAE and IESNA baselines. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline. In addition, all government-owned military housing shall incorporate the sustainable design/high performance building goals/principles.</p> <p>EPAct 2005 requires renewable electricity consumption by the Federal government can not be less than 3% in FY 2007 to FY 2009, 5% in FY 2010 to FY 2012, and 7.5% in 2013 and thereafter. In addition, EO 13423 requires that at least half of renewable energy comes from new (after 1/1/1999) renewable sources.</p>	
Water Conservation (EPAct 2005 and E.O. 13423)	<p><b>Indoor Water.</b> Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements. Per EO 13423, beginning in FY 2008, reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015 or 16 percent by the end of FY 2015.</p>	

**APPENDIX G**  
**(1) Sustainability Checklist for Leased Properties**

<b>Mandated Requirements:</b>	<b>Requirement Definition:</b>	<b>How Is Requirement Met?</b>
	<b>Outdoor Water.</b> Use water efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.	
Ventilation & Thermal Comfort	Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, 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 and mold contamination.	
Low-emitting Materials	Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, 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, 1995. 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. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.	
Recycled Content	For EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.	
Biobased Content	For USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.	

**APPENDIX G**  
**(1) Sustainability Checklist for Leased Properties**

<b>Mandated Requirements:</b>	<b>Requirement Definition:</b>	<b>How Is Requirement Met?</b>
Construction Waste	During a project’s planning stage, identify local recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 50 percent construction, demolition and land clearing waste, excluding soil, where markets or on-site 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 life cycle impacts.	
Conformance with Local Environmental Requirements	Comply with NEPA requirements and implement mitigation measures; review for applicable Federal, state and local environmental regulations; Assess project site and affected facilities for contamination and other environmental risks; Meet specific goals and targets, management controls and reporting requirements established by the facility-level EMS; and coordinated with RAMP.	

**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovation Projects**  
**Part 1 – Project Planning**

*Instructions for use: Part 1 of the checklist shall be completed for each construction and major renovation project, as defined in Appendix D, Sustainability Buildings Implementation Plan dated March 2007, at project planning and included with the initial submission of the Facility Project Approval Agreement (FPAA). Construction projects include new buildings, additions and build-to-lease. The columns titled “Where is it documented?” and “How will requirement be met?” shall be edited to reflect specific project. Not Applicable (NA) is only relevant to major renovation projects and may be used when project does not impact the specific criteria. For example, commissioning would be required only if systems renovations are part of the project. Each No or NA response requires a written explanation.*

Project Title	Will Project Be Certified?	Rating System <sup>1</sup>	Level of Certification
(Same title as reflected on FPAA)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> LEED™ <input type="checkbox"/> Green Globes™	

Mandated Requirements	Requirement Definition	Will the requirement be met?	Where is it documented?	How will requirement be met?	Comments
<b>I. Employ Integrated Design Principles</b>					
Integrated Project Team (IPT)	Meets Appendix E <sup>2</sup> definition; same requirement as for leased properties.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Project charter</i>	<i>Description of core group</i>	
Performance Goals	Establishes goals in accordance with MOU <sup>3</sup> definition (e.g., energy, water, etc.).	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>FPAA</i>	<i>IPT list of goals</i>	
Life Cycle Cost Analysis (LCCA)	Performance goals include LCCA meeting MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>FPAA, LEED™ and/or Green Globes checklist, LCCA</i>	<i>Summary statement of findings</i>	
Commissioning	Identify commissioning practices in accordance with MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Commissioning plan</i>	<i>Strategy summary (who, what, when)</i>	
<b>II. Optimize Energy Performance</b>					
Energy Efficiency	Establish whole building energy performance targets in accordance with: <ul style="list-style-type: none"> <li>• MOU definition</li> <li>• EPAAct 2005<sup>4</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of energy goals</i>	

<sup>1</sup> LEED™/MOU Mapping Guide [www.wbdg.org/pdfs/mou\\_leed\\_guide.pdf](http://www.wbdg.org/pdfs/mou_leed_guide.pdf) ; Green Globes™/MOU Mapping Guide – [www.thegbi.org/assets/pdfs/MappingTheEnvironmentalExecutiveObjectiveAndGreenGlobesV1.pdf](http://www.thegbi.org/assets/pdfs/MappingTheEnvironmentalExecutiveObjectiveAndGreenGlobesV1.pdf)

<sup>2</sup> Department of Health and Human Services Sustainable Buildings Implementation Plan, Appendix E: Integrated Project Team Definition & Charter

<sup>3</sup> Department of Health and Human Services Sustainable Buildings Implementation Plan, Appendix A: Memorandum of Understanding; Whole Building Design Guide, EO 13423 Technical guidance for Implementing the Five Guiding Principle for Federal Leadership in High Performance and Sustainable Design – [www.wbdg.org/sustainableEO/](http://www.wbdg.org/sustainableEO/)



**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovation Projects**  
**Part 1 – Project Planning**

<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Will the requirement be met?</b>	<b>Where is it documented?</b>	<b>How will requirement be met?</b>	<b>Comments</b>
	<ul style="list-style-type: none"> <li>Executive Order 13423<sup>5</sup></li> </ul>				
Overall Energy Efficiency	Establish overall energy efficiency targets consistent with the OPDIV's plan to meet energy efficiency requirements of Executive Order 13423.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of energy goals</i>	
Measurement and Verification	All utilities shall be metered and a plan for verification is completed consistent with the MOU and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or Green Globes checklist</i>	<i>List of utilities metered, summary of plan for verification</i>	
<b>III. Protect and Conserve Water</b>					
Indoor Water	Establish indoor water conservation targets consistent with MOU and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of water conservation targets</i>	
Outdoor Water	Establish outdoor water conservation targets consistent with MOU and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>		
Overall Water Conservation	Establish overall water consumption targets consistent with the OPDIV's plan to meet water conservation requirements of Executive Order 13423.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of water conservation targets</i>	
<b>IV. Enhance Indoor Environmental Quality</b>					
Ventilation & Thermal Comfort	Performance targets are consistent with MOU requirements and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or Green Globes checklist</i>	<i>Summary statement, i.e., standard design guide requirement</i>	
Moisture Control	Establish moisture control	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or</i>	<i>Summary of strategy</i>	

<sup>4</sup> <http://www.energy.gov/about/EAct.htm>

<sup>5</sup> <http://www.whitehouse.gov/news/releases/2007/01/20070124-2.html> “Strengthening Federal Environmental Energy and Transportation Management”

**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovation Projects**  
**Part 1 – Project Planning**

<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Will the requirement be met?</b>	<b>Where is it documented?</b>	<b>How will requirement be met?</b>	<b>Comments</b>
	strategy in accordance with MOU definition.		<i>Green Globes checklist</i>		
Daylighting	Performance targets are consistent with MOU and EPart 2005 requirements.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or Green Globes checklist</i>	<i>Summary statement, i.e., standard design guide requirement</i>	
Low-emitting Materials	Establish targets and select certification systems for use of low-emitting materials and products in accordance with MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Standard design guides, project specific requirements, FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of low-emitting materials targets including specific certification system(s)</i>	
Protect Indoor Air Quality during Construction	Performance targets are consistent with MOU requirements.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Standard design guidelines for project specific requirements as reflected in FPAA, Contractor's Health and Safety Plan, Green Globes and/or LEED™ checklist</i>	<i>IPT verifies standard protective measures are adequate and/or any unusual requirements, i.e., occupancy, asbestos, etc.</i>	
<b>V. Reduce Environmental Impact of Materials</b>					
Recycled Content	Establish targets for use of products with recycled content that meet or exceed the minimum requirements in accordance with the MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Standard design guides, FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of targets such as percent of materials/products with recycled content</i>	
Biobased Content	Establish targets for use of products with biobased content in accordance with the MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Standard design guides, FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of targets based on availability for the specific project</i>	
Construction Waste	Performance targets are consistent with MOU requirements.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Standard design guides, FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of construction waste targets</i>	
Ozone Depleting	Insure no ozone depleting	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Standard design</i>	<i>IPT verifies and documents</i>	

**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovation Projects**  
**Part 1 – Project Planning**

<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Will the requirement be met?</b>	<b>Where is it documented?</b>	<b>How will requirement be met?</b>	<b>Comments</b>
Compounds	compounds are used during or after construction or operations of facilities		<i>guides, LEED™ and/or Green Globes checklist</i>	<i>– Review MSDS to insure no use of ozone depleting compounds</i>	
<b>VI. Conformance with Local Environmental Requirements</b>					
National Environmental Policy Act (NEPA)	Project complies with NEPA requirements and implements mitigation measures	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>NEPA and project design documents</i>	<i>IPT ensures compliance with process specified in OPDIV's NEPA Implementation Guidance Document</i>	
Other Environmental Regulations	Project is reviewed for applicable Federal, state and local environmental regulations.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>POR, PJD, PDS, FPAA</i>	<i>IPT reviews applicable regulations with environmental compliance official and ensures required permits and licenses are obtained</i>	
Environmental Baseline Survey	Project site and affected facilities have been assessed for contamination and other environmental risks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Environmental Baseline Survey Report</i>	<i>IPT ensures completion of an environmental baseline survey</i>	
Environmental Management System	Project meets specific goals and targets, management controls and reporting requirements established by the facility-level EMS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>EMS Environmental Management Plans and audit reports</i>	<i>IPT reviews applicable EMS Environmental Management Plans and ensures implementation of management controls and reporting requirements</i>	
Asset Management Planning	Project is coordinated with Real Property Asset Management Plan (RAMP)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, Real Property Asset Management Plan and Design Documents</i>	<i>IPT reviews RAMP requirements and ensures design compliance</i>	

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**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovations**  
**Part 2 – Project Completion**

*Instructions for use: Part 2 of the checklist shall be completed for each construction and major renovation project, as defined in Appendix D, Sustainability Buildings Implementation Plan dated March 2007, at project completion and after commissioning when the building is functionally operational. Construction projects include new buildings, additions and build-to-lease. The columns titled “Where is it documented?” and “How was requirement met?” shall be edited to reflect specific project. Not Applicable (NA) is only relevant to major renovation projects and may be used when project does not impact the specific criteria. For example, commissioning would be required only if systems renovations are part of the project. Each No or NA response and each target not met requires a written explanation.*

<b>Project Title</b> <i>(Same title as reflected on FPAA)</i>	<b>Is Project Certified?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Rating System<sup>6</sup></b> <input type="checkbox"/> LEED™ <input type="checkbox"/> Green Globes™	<b>Level of Certification</b>
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<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Is the requirement met?</b>	<b>Where is it documented?</b>	<b>How was requirement met?</b>	<b>Comments</b> <i>(Detail specific features incorporated into project)</i>
<b>I. Employ Integrated Design Principles</b>					
Integrated Project Team (IPT)	Meets Appendix E <sup>7</sup> definition; same requirement as for leased properties.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Project charter</i>	<i>Description of core group</i>	
Performance Goals	Establishes goals in accordance with MOU <sup>8</sup> definition (e.g., energy, water, etc.).	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>FPAA</i>	<i>IPT list of goals</i>	
Life Cycle Cost Analysis (LCCA)	Performance goals include LCCA meeting MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>FPAA, LEED™ and/or Green Globes checklist, LCCA</i>	<i>Summary statement of findings</i>	
Commissioning	Identify commissioning practices in accordance with MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Commissioning plan</i>	<i>Strategy summary (who, what, when)</i>	
<b>II. Optimize Energy Performance</b>					
Energy Efficiency	Establish whole building energy performance targets in accordance with: <ul style="list-style-type: none"> <li>• MOU definition</li> <li>• EPAAct 2005<sup>9</sup></li> <li>• Executive Order</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of energy goals</i>	

<sup>6</sup> LEED™/MOU Mapping Guide [www.wbdg.org/pdfs/mou\\_leeed\\_guide.pdf](http://www.wbdg.org/pdfs/mou_leeed_guide.pdf) ; Green Globes™/MOU Mapping Guide – [www.thegbi.org/assets/pdfs/MappingTheEnvironmentalExecutiveObjectiveAndGreenGlobesV1.pdf](http://www.thegbi.org/assets/pdfs/MappingTheEnvironmentalExecutiveObjectiveAndGreenGlobesV1.pdf)

<sup>7</sup> Department of Health and Human Services Sustainable Buildings Implementation Plan, Appendix E: Integrated Project Team Definition & Charter

<sup>8</sup> Department of Health and Human Services Sustainable Buildings Implementation Plan, Appendix A: Memorandum of Understanding; Whole Building Design Guide, EO 13423 Technical guidance for Implementing the Five Guiding Principle for Federal Leadership in High Performance and Sustainable Design – [www.wbdg.org/sustainableEO/](http://www.wbdg.org/sustainableEO/)

**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovations**  
**Part 2 – Project Completion**

<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Is the requirement met?</b>	<b>Where is it documented?</b>	<b>How was requirement met?</b>	<b>Comments</b> <i>(Detail specific features incorporated into project)</i>
	13423 <sup>10</sup>				
Overall Energy Efficiency	Establish overall energy efficiency targets consistent with the OPDIV's plan to meet energy efficiency requirements of Executive Order 13423.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of energy goals</i>	
Measurement and Verification	All utilities shall be metered and a plan for verification is completed consistent with the MOU and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or Green Globes checklist</i>	<i>List of utilities metered, summary of plan for verification</i>	
<b>III. Protect and Conserve Water</b>					
Indoor Water	Establish indoor water conservation targets consistent with MOU and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of water conservation targets</i>	
Outdoor Water	Establish outdoor water conservation targets consistent with MOU and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of water conservation targets</i>	
Overall Water Conservation	Establish overall water consumption targets consistent with the OPDIV's plan to meet water conservation requirements of Executive Order 13423.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, LEED™ and/or Green Globes checklist</i>	<i>IPT list of water conservation targets</i>	
<b>IV. Enhance Indoor Environmental Quality</b>					
Ventilation & Thermal Comfort	Performance targets are consistent with MOU requirements and EAct 2005.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or Green Globes checklist</i>	<i>Summary statement, i.e., standard design guide requirement</i>	
Moisture Control	Establish moisture control strategy in accordance with MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>LEED™ and/or Green Globes checklist</i>	<i>Summary of strategy</i>	

<sup>9</sup> <http://www.energy.gov/about/EAct.htm>

<sup>10</sup> <http://www.whitehouse.gov/news/releases/2007/01/20070124-2.html> “Strengthening Federal Environmental Energy and Transportation Management”

**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovations**  
**Part 2 – Project Completion**

<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Is the requirement met?</b>	<b>Where is it documented?</b>	<b>How was requirement met?</b>	<b>Comments</b> <i>(Detail specific features incorporated into project)</i>
Daylighting	Performance targets are consistent with MOU and EPA 2005 requirements.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	LEED™ and/or Green Globes checklist	Summary statement, i.e., standard design guide requirement	
Low-emitting Materials	Establish targets and select certification systems for use of low-emitting materials and products in accordance with MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Standard design guides, project specific requirements, FPAA, LEED™ and/or Green Globes checklist	IPT list of low-emitting materials targets including specific certification system(s)	
Protect Indoor Air Quality during Construction	Performance targets are consistent with MOU requirements.	<input type="checkbox"/> Yes <input type="checkbox"/> No	Standard design guidelines for project specific requirements as reflected in FPAA, Contractor's Health and Safety Plan, Green Globes and/or LEED™ checklist	IPT verifies standard protective measures are adequate and/or any unusual requirements, i.e., occupancy, asbestos, etc.	
<b>V. Reduce Environmental Impact of Materials</b>					
Recycled Content	Establish targets for use of products with recycled content that meet or exceed the minimum requirements in accordance with the MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Standard design guides, FPAA, LEED™ and/or Green Globes checklist	IPT list of targets such as percent of materials/products with recycled content	
Biobased Content	Establish targets for use of products with biobased content in accordance with the MOU definition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Standard design guides, FPAA, LEED™ and/or Green Globes checklist	IPT list of targets based on availability for the specific project	
Construction Waste	Performance targets are consistent with MOU requirements.	<input type="checkbox"/> Yes <input type="checkbox"/> No	Standard design guides, FPAA, LEED™ and/or Green Globes checklist	IPT list of construction waste targets	
Ozone Depleting Compounds	Insure no ozone depleting compounds are used during or after construction or operations	<input type="checkbox"/> Yes <input type="checkbox"/> No	Standard design guides, LEED™ and/or Green Globes	IPT verifies and documents – Review MSDS to insure no use of ozone depleting	

**APPENDIX G**  
**(2) Sustainable Checklist for Construction and Renovations**  
**Part 2 – Project Completion**

<b>Mandated Requirements</b>	<b>Requirement Definition</b>	<b>Is the requirement met?</b>	<b>Where is it documented?</b>	<b>How was requirement met?</b>	<b>Comments</b> <i>(Detail specific features incorporated into project)</i>
	of facilities		<i>checklist</i>	<i>compounds</i>	
<b>VI. Conformance with Local Environmental Requirements</b>					
National Environmental Policy Act (NEPA)	Project complies with NEPA requirements and implements mitigation measures	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>NEPA and project design documents</i>	<i>IPT ensures compliance with process specified in OPDIV's NEPA Implementation Guidance Document</i>	
Other Environmental Regulations	Project is reviewed for applicable Federal, state and local environmental regulations.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>POR, PJD, PDS, FPAA</i>	<i>IPT reviews applicable regulations with environmental compliance official and ensures required permits and licenses are obtained</i>	
Environmental Baseline Survey	Project site and affected facilities have been assessed for contamination and other environmental risks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>Environmental Baseline Survey Report</i>	<i>IPT ensures completion of an environmental baseline survey</i>	
Environmental Management System	Project meets specific goals and targets, management controls and reporting requirements established by the facility-level EMS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>EMS Environmental Management Plans and audit reports</i>	<i>IPT reviews applicable EMS Environmental Management Plans and ensures implementation of management controls and reporting requirements</i>	
Asset Management Planning	Project is coordinated with Real Property Asset Management Plan (RAMP)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<i>FPAA, Real Property Asset Management Plan and Design Documents</i>	<i>IPT reviews RAMP requirements and ensures design compliance</i>	

## APPENDIX H

HHS EXISTING BUILDING SUSTAINABILITY EVALUATION AND PRIORITIZATION MATRIX	
Building name:	
Location:	
Date of Assessment:	
Prepared by:	
Square Footage (specify gsf or usf):	
Mission Criticality: <input type="checkbox"/> Mission Critical <input type="checkbox"/> Mission Dependent <input type="checkbox"/> Not Mission Dependent	
Commissioning/Recommissioning: <input type="checkbox"/> Completed - date: _____ <input type="checkbox"/> Not completed <input type="checkbox"/> Not Applicable	
Assessment Report attached? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>The Assessment Report should include a comprehensive list of the building's strengths, weaknesses and deficiencies; a prioritized list of deficiencies that can be addressed by minor alterations or repairs (considering payback over the life cycle); and a status summary indicating whether a major renovation or replacement of the facility (and estimated time frame) is recommended by the assessment team.</i>	

	Building Attribute	Attribute Definition	Building Condition Scoring Criteria						Score Assigned
			0	10-30	30-50	50-70	70-90	90-100	
A	<b>Energy Performance</b>	Effectiveness of energy conservation measures.	Energy costs are 20% or more below the 2003 baseline rating per ASHRAE and IESNA Standard 100-2006. Building-level utility meters are installed. Performance data is collected and entered in High Performance Buildings database.	Energy costs are 10% or more below the baseline. Building-level meters are installed. Performance data is collected.	Energy costs are less than 10% below baseline. Building-level meters are installed. Performance data is collected.	Energy conservation program is in place. Building-level meters are installed; but no performance data has been collected to date.	Energy conservation program is in place. Building-level meters are not installed. Energy costs are at baseline.	No energy conservation program is in place. No building-level meters are installed. Energy costs at or above baseline.	



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Building Attribute	Attribute Definition	Building Condition Scoring Criteria							Score Assigned
		0	10-30	30-50	50-70	70-90	90-100		
<b>B</b>	<b>Water Conservation</b>	Effectiveness of water conservation measures, both indoors and outdoors.	Indoor potable water usage is 20% or more below building baseline (Energy Policy Act of 1992). Water efficient landscape and irrigation strategies are used, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50% over that consumed by conventional means.	Indoor water usage is 10% or more below baseline. Water reuse and recycling used to reduce outdoor water usage.	Indoor water usage is less than 10% below baseline. Water reuse and recycling used to reduce outdoor water usage.	Water conservation program is in place for both indoor and outdoor usage. Water reuse and recycling used to reduce outdoor water usage. Indoor water usage is at baseline.	Water conservation program is in place for indoor or outdoor usage.	No water conservation program is in place for either indoor or outdoor usage. Water usage is at or above baseline.	
<b>C</b>	<b>Indoor Environmental Quality</b>	Effectiveness of measures to enhance indoor environmental quality, including ventilation and thermal comfort, moisture control, daylighting (where applicable), low-emitting materials, and indoor air quality during construction.	Meets ASHRAE Standards 55-2004 and 62.1-2004. A moisture control strategy is in place. A policy is in place to use low-emitting materials. A minimum daylight factor of 2% (where applicable) has been achieved in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards; moisture control strategy is in place. A policy is in development to use low-emitting materials. A minimum daylight factor of 1% has been achieved in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards; moisture control strategy is in place. A policy is in development to use low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards; moisture control strategy is in place. There is no policy on the use of low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards. Moisture control strategy is not in place. There is no policy on the use of low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	Does not meet ASHRAE standards and moisture control strategy is not in place. There is no policy on the use of low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	

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<b>D</b>	<b><i>Environmental Impact of Materials</i></b>	Effectiveness of measures to reduce the environmental impact of materials used in renovations, repairs, and operations and maintenance.	Policies are in place and being followed to use products that meet or exceed EPA's recycled content recommendations and USDA's biobased content recommendations. Ozone depleting compounds have been eliminated.	Policy is in place and being followed to use products that meet recycled content; policy is not in place to use products that meet biobased content (or vice versa). Ozone depleting compounds have been eliminated.	Policy is in place and being followed to use products that meet recycled content; policy is not in place to use products that meet biobased content (or vice versa). Some ozone depleting compounds remain in use.	Policy is under development to address use of products that meet recycled content and biobased content. Some ozone depleting compounds remain in use.	No policies in place or policies are not being followed for use of recycled or biobased products. Some ozone depleting compounds remain in use.	No policies in place for use of recycled or biobased products. Ozone depleting compounds are in regular use.	
<b>E</b>	<b><i>Economics</i></b>	Current and avoidable potential costs associated with ownership and use of buildings and potential payback for improvements over the remaining life cycle or lease.	Costs are equal to or lower than those for buildings supporting similar mission activities. No improvements required.	Costs are equal to buildings supporting similar mission activities; improvements not likely to yield payback over remainder of life cycle or lease.	Costs higher than comparable buildings; low potential for loss of capital assets and/or reductions in employee productivity if improvements are not made; improvements have minor potential for payback (in 5-10 years or remainder of life cycle or lease).	Costs higher than comparable buildings; moderate potential for loss of major capital assets and/or reductions in employee productivity if improvements are not made; moderate potential for payback from improvements (in 3-5 years or within current lease) is supported by formal documentation.	Costs significantly higher than comparable buildings; high potential for loss of major capital assets and/or reductions in employee productivity if improvements are not made; high potential for payback from improvements (less than 3 years) is supported by formal documentation.	Costs seriously jeopardize ability to retain facility or conduct mission; high potential for payback from improvements (less than 3 years or within current lease) is supported by formal documentation.	
<b>F</b>	<b><i>Conformance with Local Environmental Requirements</i></b>	Effectiveness of measures conforming to Federal, state and local environmental regulations and policies; OPDIV specific environmental management systems; and RAMP requirements.	All environmental requirements have been met, a baseline survey is complete, and mitigation measures implemented. EMS for covered facilities is in place and being met; and all RAMP requirements are followed.	All environmental requirements have been met, a baseline survey is complete, and mitigation measures implemented. EMS for covered facilities is in place and being met. RAMP requirements are not followed.	All environmental requirements have been met, a baseline survey is complete, and mitigation measures implemented. EMS for covered facilities and RAMP requirements are not followed.	All environmental requirements have been met and mitigation measures implemented; however a baseline survey is not complete. EMS for covered facilities and RAMP requirements are not followed.	All environmental requirements have been met; however a baseline survey is not complete and mitigation measures are not implemented. EMS for covered facilities and RAMP requirements are not followed.	All environmental requirements have not been met.	

# APPENDIX I

## O & M Sustainability Practices for New and Existing Buildings

### **Introduction**

The Department of Health and Human Services (HHS) implemented a sustainable buildings program policy (September 8, 2006) to address the requirements of the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Agreement (MOU) and subsequently updated December 31, 2007 to address Executive Order 13423, Strengthening Federal Environmental, Energy and Transportation Management. To ensure the benefits of sustainability carry on throughout the life cycle of the facility additional guidance is required in the area of Operations and Maintenance (O & M). The purpose of this document is to provide the added guidance needed by a facility manager who intends to upgrade their existing facility to incorporate sustainable O & M practices in an existing facility. The document is divided into four sections:

- A definition of O & M;
- An overview of the guiding principles;
- A list of the sustainable O & M practices that apply to each of the 5 guiding principles; and
- References.

### **Definition of Operations and Maintenance**

Operations and maintenance consists of the daily activities required to run a facility. These activities are made up of operating the building equipment, service calls, routine maintenance, repairs under \$10,000, cleaning, roads, parking and grounds maintenance.

The cost of running a facility can easily exceed the construction cost over the life of a facility. O & M costs consist of both labor and materials for the following four components:

- A. Recurring maintenance and repair costs (under \$10,000).
- B. Utilities (includes central plant operation and purchase of energy).
- C. Cleaning and/or janitorial costs (includes pest control, refuse collection and disposal to include recycling operations), and
- D. Road/grounds costs (includes grounds maintenance, landscaping and snow and ice removal from roads, piers and airfields).

A more detailed description of the activities included in O & M is included in Attachment (a). This attachment is taken from the Real property Asset Management Plan (RAMP).

### **The Five Guiding Principles**

The Federal Leadership in High Performance and Sustainable Buildings Memorandum of Agreement (MOU) outlined five guiding principles, which are:

1. Employ Integrated Design Principles
  - Integrated Design
  - Commissioning

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**O & M Sustainability Practices for New and Existing Buildings**

2. Optimize Energy Performance
  - Energy Efficiency
  - Measurement and Verification
3. Protect and Conserve Water
  - Indoor Water
  - Outdoor Water
4. Enhance Indoor Environmental Quality
  - Ventilation and Thermal Comfort
  - Moisture Control
  - Daylighting
  - Low-Emitting Materials
  - Protect Indoor Air Quality during Construction
5. Reduce Environmental Impact of Materials
  - Recycled Content
  - Bio-based Content
  - Construction Waste
  - Ozone Depleting Compounds

Not all of these elements can be applied to O & M practices; however, each of the 5 principles contains at least one element that does apply to O & M.

**Sustainable O & M Practices**

This section is organized by guiding principle. Under each guiding principle is a list of sustainable practices that apply to the specific principle. After the description of each sustainable practice is the area of O & M in which it applies.

A good O & M program that employs sustainable practices should:

- Set demanding short and long term goals.
- Measure performance so that the building can be benchmarked against other buildings.
- Easily adjust to changing occupant needs by designing in the capability to modify HVAC, lighting, electrical, telecommunications, safety, housekeeping and building automation control systems.
- Repair, upgrade, and re-commission building systems to ensure that they are performing at their peak performance.
- Extend the useful service life of materials and equipment.
- Prevent disruptive failures in the building and its systems.
- Promote greater productivity.
- Incorporate environmentally-protective features into all contracts, and all maintenance and procurement practices.
- Develop and maintain a master equipment list, with model and serial numbers, required spare parts, equipment specifications, and parts suppliers list.
- Develop and maintain an equipment history record file, noting dates of installation and repair history.

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### **O & M Sustainability Practices for New and Existing Buildings**

- Maintain operating manuals and specifications for equipment.
- Maintain air balancing reports and airflow specifications.
- Maintain as-built blueprints of mechanical, electrical, and plumbing systems and control blueprints showing how the systems operate.
- Develop and maintain preventive maintenance charts for each piece of equipment and work orders for those activities.

These practices coupled with the sustainable elements listed below create a robust sustainable O & M program. These lists can also be used by the facility manager to upgrade an existing program. Samples of some O & M elements relating to the guiding principles are listed below. Please note this is not intended to be a comprehensive list, but an example of some ways to integrate the guiding principles into O & M.

1. Employ Integrated Design Principles
  - 1.1 Integrated Design
    - 1.1.1 Train building occupants, facilities managers and maintenance staff in sustainable design principles.
    - 1.1.2 Design the HVAC system so that maintenance and inspection will be easy to accomplish, including adequate space to maintain, repair and replace equipment in mechanical rooms and interstitial spaces. This includes providing access doors in ceilings or walls to reach air handling units, filter banks, fan-coil units, terminal boxes, and controllers or sensors that require regular maintenance and calibration (repair and maintenance).
    - 1.1.3 Provide adequately sized and properly designed storage facilities in the building, such as a separately exhausted central chemical supply area near the loading dock, janitor's closets on each floor, dedicated recycling storage areas, and handling and transport mechanisms (custodial).
    - 1.1.4 Include permanent walk-off grilles or mats at all entrances to eliminate tracked-in dirt. Use landscaping or railings to keep people on the pavement near the building entrances (custodial).
    - 1.1.5 Select durable, low-maintenance, soil-resistant, low-emitting building materials, equipment, and furnishings. In heavily trafficked areas, carpet tiles may be preferable to broadloom because small stained sections can be replaced and recycled, avoiding use of powerful carpet cleaners (custodial).
    - 1.1.6 Provide documentation of design intent for building systems (repair and maintenance).
    - 1.1.7 Incorporate controls and feedback systems for building systems to inform the facility manager of conditions and deviations of the design intent.

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**O & M Sustainability Practices for New and Existing Buildings**

- 1.2 Commissioning
  - 1.2.1 Implement a comprehensive, preventive maintenance program to keep all building systems functioning as designed. Provide operations support to facilities managers and maintenance crews to answer questions and offer additional information. At a minimum, re-commission on a 10 year cycle (repair and maintenance).
  - 1.2.2 During the construction phase and prior to turnover of the facility, O & M manuals are provided by the construction project manager to the O & M organization and O & M organization personnel are provided training required for O & M of the new facility (repair and maintenance).
- 2. Optimize Energy Performance (utilities – all)
  - 2.1 Energy Efficiency
    - 2.1.1 Controls
      - 2.1.1.1 Use schedule, occupancy, or luminance sensors to control lighting and other functions.
      - 2.1.1.2 Use timers to turn on/off equipment.
      - 2.1.1.3 Manually turn off the lights, computers, and equipment if not equipped with automatic controls when not in use.
      - 2.1.1.4 Enable power-down features on office equipment (Energy Star).
    - 2.2 Measurement and Verification
      - 2.2.1 Meter and monitor all utilities (utilities).
      - 2.2.2 Benchmark the facility using EPA’s Energy Star benchmarking tool (utilities).
  - 2.3 Conduct energy and O & M audits.
  - 2.4 Purchase energy from renewable sources (utilities).
- 3. Protect and Conserve Water (utilities – all)
  - 3.1 Indoor Water
    - 3.1.1 Inspect and repair leaks in a timely manner.
    - 3.1.2 Install low flow fixtures.

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3.2 Outdoor Water

3.2.1 Landscaping

3.2.1.1 Landscape with native, or indigenous, plants to minimize watering requirements (grounds).

3.2.2 Discharge Water

3.2.2.1 Discharge water meets EPA regulations (repair and maintenance).

3.2.2.2 Cooling tower make up water is metered (repair and maintenance).

4. Enhance Indoor Environmental Quality

4.1 Ventilation and Thermal Comfort

4.1.1 Develop and maintain master schedules for operations and preventive/predictive maintenance (repair and maintenance).

4.1.2 Continuously monitor equipment performance (repair and maintenance).

4.1.3 Assure early detection of defects or failures in equipment through use of service alarms (repair and maintenance).

4.1.4 Minimize equipment failures by use of preventive maintenance, standbys, etc. so that the failed component can be isolated and repaired without interrupting system performance (repair and maintenance).

4.1.5 Use internal and external test systems to locate faults and fix problems (repair and maintenance).

4.1.6 While HVAC systems may be designed to isolate operations (kitchens, dry cleaners, etc.) from other occupancies, the O & M staff should check to see that pressure differentials are in fact maintained, to avoid the undesirable flow of contaminants from restrooms, kitchens, parking garages, laboratories, etc. ---(repair and maintenance).

4.1.7 Outside air ventilation meets ASHRAE 62-2004 standards (repair and maintenance).

4.1.8 Indoor temperature and humidity conditions meet ASHRAE 55-2004 standards (repair and maintenance).

4.1.9 Air handling equipment is equipped or modified to be equipped with an economizer cycle (repair and maintenance).

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4.2 Moisture Control

4.2.1 Dry surfaces promptly. Water-damaged, porous building materials or furnishings, if not dried and cleaned within 24 hours, may have to be replaced (custodial).

4.2.2 Prevent moisture condensation (repair and maintenance).

4.2.3 Maintain a water tight building envelope, including the roof (repair and maintenance).

4.3 Day-lighting – none specified

4.4 Low-Emitting Materials

4.4.1 Use integrated pest management methods of pest control as part of the overall building maintenance program (custodial).

4.4.2 Shut down ventilation system(s) and remove occupants until pesticide applications are completed. Perform applications during non-working hours to the maximum extent practicable (custodial).

4.4.3 For carpets, follow guidelines of the Carpet and Rug Institute (custodial).

4.4.4 Prevent excess moisture or cleaning residue accumulation (custodial).

4.4.5 When appropriate, select "certified" environmental cleaning products (custodial).

4.4.6 Develop safe handling, disposal, and storage practices including procedures for spill control (repair and maintenance).

4.4.7 Establish maintenance practices to minimize exposure to hazardous materials by substituting less hazardous materials (repair and maintenance).

4.4.8 Use cleaners that biodegrade rapidly (custodial).

4.4.9 Purchase products that are concentrated, using less packaging for more power (custodial).

4.4.10 Use non-toxic pest control for indoor spaces and plants (custodial).

4.4.11 Implement a structured preventative maintenance program to insure air ducts are clean and free of microorganisms through a structured program of preventive maintenance (repair and maintenance).

4.4.12 Low emission paint is used for maintaining surfaces (repair and maintenance).



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- 5.0 Reduce Environmental Impact of Materials
  - 5.1 Recycled Content
    - 5.1.1 Start a comprehensive recycling program with source separation and occupant incentives (custodial).
    - 5.1.2 Use on-site composting of organic materials (grounds).
    - 5.1.3 Use landscaping products with recycled content (grounds).
  - 5.2 Bio-based Content
    - 5.2.1 Bio-based products are used that meet or exceed the USDA's biobased content recommendations (custodial).
    - 5.2.2 Recycled paper products are purchased (custodial).
- 5.3 Construction Waste – Demolition waste is separated and recycled to the maximum extent practicable
- 5.4 Ozone Depleting Compounds
  - 5.4.1 Retrofit/replace A/C equipment with environmentally friendly refrigerants (repair and maintenance).
  - 5.4.2 Retrofit/replace Halon-based fire suppression equipment with environmentally friendly fire suppression agents (repair and maintenance).

#### **References**

More information can be obtained through the following websites:

[WBDG—Construction Operations Building Information Exchange \(COBIE\) Benchmarking, a Reliability Driver](#) by Ray Oliverson, SMRP Presented at the 8th International Process Plant Reliability Conference (October 26, 1999)

[DOD UFC 3-270-06 Paver Asphalt Surfaced Airfields Pavement Condition Index \(PCI\)](#)

[DOD UFC 4-310-02N Design: Clean Rooms](#)

DOE/EE-0249 FEMP [Low Energy Building Design Guidelines](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Chapter 3: O & M Management](#)

DOE FEMP Operations and Maintenance: [Pump Design / Selection](#)

DOE FEMP Utility Services Case Study—[Thermal Energy Storage at a Federal Facility](#)

[EPA I-BEAM](#)—The Indoor Air Quality Building Education and Assessment Model (I-BEAM) is a guidance tool designed for use by building professionals and others interested in indoor air quality in commercial buildings.

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### O & M Sustainability Practices for New and Existing Buildings

[Chapter - Ductwork cleaning/standards](#)

[Chapter - Exhaust System Design](#)

GSA 2003 Facilities Standards (P100)—[Appendix 3: New Constructions and Modernizations WBDG—Construction Operations Building Information Exchange \(COBIE\)](#)

DOE FEMP Commissioning Case Study—[In-house Retro-commissioning at a DOE National Laboratory](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Chapter 7: Commissioning Existing Buildings](#)

[FEMP O & M Continuous Commissioning Guidebook](#)

Energy Star® Buildings Manual [Recommissioning](#)

[Example Retro-Commissioning Scope of Work](#)

GSA - [Succession Planning](#)

[Mechanical Systems Commissioning](#)

[Society for Machinery Failure Prevention Technology](#)

[TM 5-697 Commissioning of Mechanical Systems for Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance \(C4ISR\) Facilities](#)

[WBDG—Construction Operations Building Information Exchange \(COBIE\)](#)

[DOD UFC 3-410-05N Heating Systems Operation and Maintenance](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Management - Section 3.4 Measuring the Quality of Your O & M Program](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Types of Maintenance Programs - Section 5.1 through 5.5](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Types of Maintenance Programs - Sections 5.5 and 5.6 Reliability Centered Maintenance](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Chapter 8: Metering for Operations and Maintenance](#)

Energy Star®[Operation and Maintenance \(O & M\) Reports](#)

"FEMP Operations and Maintenance Best Practices Guide" by Greg Sullivan PE, CEM, Pacific Northwest National Laboratory, Presented at the Energy 2003, August 18, 2003

FEMP [Operations and Maintenance](#)

[Society for Machinery Failure Prevention Technology](#)

[Air Force Instruction 32-1051 Roof Systems Management](#)

[DOD UFC 3-600-02: O & M: Inspection, Testing, and Maintenance of Fire Protection Systems](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Types of Maintenance Programs - Section 5.4 Predictive Maintenance](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Ideas for Major Equipment Types - Section 9.3 Steam Traps](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Ideas for Major Equipment Types - Sections 9.4.6 to 9.4.8 Maintenance of Chillers](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Ideas for Major Equipment Types - Section 9.5 Cooling Towers](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Ideas for Major Equipment Types - Section 9.6 Energy Management/Building Automation Systems](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Ideas for Major Equipment Types - Sections 9.6.6 to 9.6.9 EMS Maintenance](#)

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DOE FEMP Operations and Maintenance Best Practices Guide: [O & M Ideas for Major Equipment Types - Sections 9.10.6 to 9.10.9 Maintenance of Air Compressors](#)

[Elevator inspection/repair](#)

Energy Star® Buildings Manual [Fan System Upgrades](#)

Energy Star® Buildings Manual [Lighting](#)

[EPA I-BEAM](#)—The Indoor Air Quality Building Education and Assessment Model (I-BEAM) is a guidance tool designed for use by building professionals and others interested in indoor air quality in commercial buildings.

[Chapter - Cooling Towers](#)

FEMP Operations and Maintenance [Fans Maintenance](#)

FEMP Operations and Maintenance [Lighting Technologies](#)

FEMP Operations and Maintenance [Maintenance of Pumps](#)

FEMP Operations and Maintenance [Steam Traps](#)

FEMP Operations and Maintenance [Types of Motors](#)

[Society for Machinery Failure Prevention Technology](#)

[TM 5-617 Facilities Engineering - Maintenance and Repair of Roofs](#)

[TM 5-692-1 Maintenance of Mechanical and Electrical Equipment at Command, Control Communications, Intelligence, Surveillance, and Reconnaissance \(C4ISR\) Facilities](#)

[TM 5-692-2 Maintenance of Mechanical and Electrical Equipment at Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance \(C4ISR\) Facilities](#)

[VA Boiler Plant Operations - VHA Directive 2003-050](#)

[VA Electrical Power Distribution System Operations - VHA Directive 2006-056](#)

DOE FEMP Operations and Maintenance Best Practices Guide: [Chapter 4: Computerized Maintenance Management System](#)

Note: this information was obtained from the WBDG Website.

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**Attachment (a) – Detailed Definition of Operations and Maintenance (from RAMP)**

**I. Purpose**

The purpose of this measure is to identify uniform procedures for each OPDIV or other HHS component to follow in reporting total operating and maintenance costs on a by building basis.

**II. Applicability**

This performance measure applies to all HHS-owned buildings. The operating and maintenance cost measure is made up of four component costs:

- A. Recurring maintenance and repair costs.
- B. Utilities (includes central plant operation and purchase of energy).
- C. Cleaning and/or janitorial costs (includes pest control, refuse collection and disposal to include recycling operations), and
- D. Road/grounds costs (includes grounds maintenance, landscaping and snow and ice removal from roads, piers and airfields).

**III. Responsibilities**

- 1. Each OPDIV or other HHS component is responsible for the following to assure appropriate implementation:
  - A. Input data on its operating and maintenance costs for FY 2006 for each building by January 1, 2007. Data for all subsequent fiscal years will be inputted by the following January 1.
  - B. Utilize a computer system (with appropriate backup data) to report on the four operating and maintenance component costs at the building level.

**IV. Procedures**

- 1. The data in the computerized system will contain the following information, with costs for measured on a cost per gross square foot (GSF) basis.

Site	Building Number	Recurring Maintenance and Repair Costs	Utility Costs	Cleaning/Janitorial Cost	Roads and Grounds Costs	Total	Comments
Site xx	Building xx	\$ xxxx	\$ xxxx	\$ xxxx	\$ xxxx	\$ xxxx	
Site xx	Building xx	\$ xxxx	\$ xxxx	\$ xxxx	\$ xxxx	\$ xxxx	
Total Site xx		\$ xxxx	\$ xxxx	\$ xxxx	\$ xxxx	\$ xxxx	

Currently, not all cost information is available at the building level. In that event, costs may be allocated using an algorithm. OPDIVs shall be able to describe the algorithm applied for

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### **O & M Sustainability Practices for New and Existing Buildings**

each measure but need not include that explanation in the database. The algorithms used by NIH are attached for illustrative purposes. That algorithm uses weighting factors to allocate costs by building type for Recurring Maintenance and Repair, Utilities, and Cleaning/Janitorial costs. Roads and Grounds cost do not need to be weighted.

Where some of the operating and maintenance function are performed by contractors and the costs are not allocated at the building level, the OPDIVs should revise the contract format to capture actual costs at the building level when the requirement is re-solicited.

Explanations for measuring the four components of the operating and maintenance costs are described below.

#### 1. Recurring Maintenance and Repair Costs (\$/GSF):

##### A. Includes the following building systems and/or components:

- a. HVAC systems to include building automation system.
- b. Electrical systems to include uninterruptible power systems, emergency power, and emergency generators.
- c. Plumbing systems to include restroom fixtures, domestic water, sanitary sewer, reverse osmosis, natural gas, and compressed air.
- d. Chilled water systems.
- e. Steam and condensate systems.
- f. Fire protection to include fire alarm systems, sprinkler systems, exit lights, fire stopping, cooking hoods, rated walls and rated doors.
- g. Architectural components to include flooring, doors with associated hardware, ceilings, painting, wall coverings,
- h. Refrigeration for cold rooms and DX systems.
- i. Card access systems to include readers, panels, and software.
- j. Medical gas systems.
- k. Nurse call systems.
- l. Building structure and components.
- m. Laboratory fume hood exhaust systems.
- n. Roofs, downspouts and gutters.
- o. Predictive maintenance monitoring equipment.
- p. Perimeter fencing and gates.
- q. Elevators, escalators and lifts.

##### B. Includes labor and materials for the following services:

- a. Preventive or predictive maintenance procedures on building equipment and components.
- b. Service or trouble calls related to HVAC, electrical, plumbing, architectural components such as doors, floors, and windows, lighting, fire alarms, and any other component directly related to the safe operation of the building.
- c. Miscellaneous repairs less than \$10,000.
- d. Facility management services.
- e. 24/7 emergency response (15 minutes).
- f. Day to day operations function of routine checking of critical equipment or problem areas.

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- g. Maintaining an accurate building equipment inventory and accurate building drawings.
  - h. Operating support for program related upgrades or capital repairs to include shutdowns as well as providing basic information about the building and associated systems.
  - i. Associated support for all operations and maintenance services such as vehicles, vehicle maintenance, training, computer equipment, maintenance related software systems, office supplies, copiers, fax machines, phones, radios, IT support, and supervision.
- C. Does not include the following:
- a. Facility condition assessments.
  - b. Loading dock management services.
  - c. Animal care cage wash equipment maintenance and repair.
  - d. Other miscellaneous program related equipment maintenance and repair.
  - e. Telecommunication systems maintenance and repair.
  - f. Portable equipment such as refrigerators, freezers, and laboratory equipment.
2. Utilities Costs (\$/GSF):
- A. Includes the following utility distribution systems and Central Utility Plant equipment:
- a. Primary domestic water distribution system including fire hydrants.
  - b. Primary sanitary sewer distribution system.
  - c. Primary natural gas distribution system.
  - d. Primary compressed air distribution system.
  - e. Primary chilled water distribution system.
  - f. Primary steam and condensate return distribution system.
  - g. Primary electrical distribution system.
  - h. SCADA System.
  - i. Metering systems.
  - j. Central Utility Plant equipment to include boilers, chillers and air compressors.
- B. Includes labor and materials for the following services:
- a. Preventive or predictive maintenance procedures and repairs on all Central Utility Plant equipment.
  - b. Repair of all primary utility distribution systems.
  - c. Operation of Central Utility Plant.
  - d. Maintenance and repair of metering systems, and meter reading.
  - e. Purchase of all utilities to include electricity, natural gas, water/sanitary sewer, propane, and fuel oil.
  - f. Maintaining an accurate Central Utility Plant equipment inventory and accurate primary utility systems distribution drawings.
  - g. Operating support for program related upgrades or capital repairs to include shutdowns as well as providing basic information about primary utilities systems.

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- h. Associated support for all operations and maintenance services such as vehicles, vehicle maintenance, training, computer equipment, maintenance related software systems, office supplies, copiers, fax machines, phones, radios, IT support, and supervision.
3. Cleaning/Janitorial Costs (\$/GSF):
- A. Includes the labor and materials for the following services:
    - a. Custodial cleaning services to include offices, laboratories, restrooms, corridors, stairwells, building entrances, conference rooms, and break rooms.
    - b. Trash/Refuse collection.
    - c. Window washing.
    - d. Recycling operations.
    - e. Pest control operations.
  - B. Does not include the following:
    - a. Removal of hazardous waste.
4. Roads/Grounds Costs (\$/GSF):

Roads and Grounds costs shall be allocated based on the GSF of a building. Because the size of campuses and the build-out per campus can vary substantially, the cost per acre can be included in the comment field if that helps to explain costs that might seem high as compared to a building located off campus or on a densely developed campus.

- A. Includes the following services:
  - a. Maintenance of landscaping to include grass cutting, tree trimming, shrub trimming, mulching, fertilizing, application of herbicides, shrub bed maintenance, flower, tree and shrub planting and removal of leaves.
  - b. Snow and ice removal from all roads, parking lots, sidewalks and building entrances.
  - c. Maintenance and repair of exterior and transportation signage and electronic control devices.
  - d. Maintenance and repair of roads, sidewalks, parking lots, bridges, pavement marking and street lights.
  - e. Removal of litter.
  - f. Street sweeping.
  - g. Parking garage cleaning, striping, lighting, and washing.
- B. Does not include the following:
  - a. Any new construction of roads, sidewalks, or parking lots.
  - b. Purchase and maintenance of interior plants.
  - c. Setting up for special events held outdoors.
  - d. Work required to comply with changes in security color codes.

**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
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**I. Employ Integrated Design Principles**

**Integrated Design.** Use a collaborative, integrated planning and design process that:

<p>Initiates and maintains an integrated project team in all stages of a project's planning and delivery</p>	<p>Each OPDIV shall establish an integrated project team (IPT) approach that ensures a project sustainability strategy is incorporated consistent with the policy.</p>	<p>CDC establishes a core IPT for each project meeting HHS approval thresholds. IPT members are selected by their expertise as it relates to the scope and size of the project. CDC assesses if internal or external resources are available and needed to support the IPT fully. IPT is required to participate in <i>Project Definition Rating Index (PDRI)</i> sessions for the project they are assigned to coordinate.</p> <p>CDC considers contracts with expertise in green building qualifications for planning, design, construction, and commissioning and operations.</p> <p>Currently the CDC design guidelines include:</p> <ul style="list-style-type: none"> <li>• Establishment of</li> </ul>	<p>The FDA establishes a core integrated project team at the project's initiation and through project completion. The integrated project team consists of an integrated multidisciplinary design team (A/E of Record) with a certified LEED professional. The team is headed by an FDA project officer (engineer with specific project experience), customer relations manager, operations and maintenance personnel, environmental and occupational safety and health professionals, and in-house energy reviewer for energy intensive projects. The team establishes sustainable goals for the project.</p>	<p>The IHS establishes an Integrated Project Team (IPT) at the beginning of planning. The team consists of Program representatives, Facility management, Tribal, Finance, Head Quarters Facility Planning staff, Environmental specialist staff, Project Management staff, and Technical Support Staff. The New IHS A/E Design Guide (due to be published in early 2008) requires, when a designer is employed, that A/E participate on the IPT. The IPT will conduct a Concept Phase Sustainable Design Charrette.</p>	<p>Investigation by the NIH EMS sustainability focus groups of the project budgeting, planning, management, design and construction process at NIH revealed that the current process for new construction is not a well integrated approach due to organizational structure and federal procurement requirements.</p> <p>The Division of Environmental Protection (DEP) is contracting for the services of LEED Accredited Professionals to serve on IPTs during the pre-project planning phase, before project IPTs are in place.</p> <p>The DEP reviews FPAA sustainability checklists for all new projects and requires commitments to have charters and IPTs in place prior to</p>
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**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

	<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
		<p>aggressive energy and water conservation goals early in the project planning stage</p> <ul style="list-style-type: none"> <li>• Establishment of a core team and extended energy technology core team with specific leadership and line of responsibility that set goals of technologies to be used from the planning stage through design, construction and life cycle of the facility</li> <li>• Utilization of energy consultants to supplement engineering staff on energy intensive projects</li> <li>• Commissioning of all new buildings and HVAC systems undergoing renovation</li> </ul>			<p>commencement of design and construction.</p> <p>Requirements to follow all Guiding Principles, including Integrated Design Principles have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p>
<p><a href="#">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,</a></p>	<p>The IPT shall establish and monitor performance goals consistent with the sustainability strategy for the project and document in the FPAA.</p>	<p>The CDC has incorporated the sustainability MOU performance goals into the current design guidelines and measures performance by using the U.S Green Building Council’s Leadership in Energy and Environmental Design (LEED) or the Green Building Initiative’s Green</p>	<p>The FDA is in the process of developing sustainable design criteria that take into consideration environmental stewardship, social responsibility, a quality work environment, and conservation. The FDA will incorporate the Energy Policy MOU into our proposed design guidelines and</p>	<p>The new IHS A/E Design Guide will include sustainable design guidance in the areas identified through implementation of LEED and/or Green Globes. The IPT shall establish performance goals including siting, energy, water, materials, IEQ and sustainable certification. The</p>	<p>The MOU Guiding Principles, as interpreted by HHS and applied to specific building types in use at the NIH will establish the required performance goals to be applied to all new construction projects and existing building stock at NIH. Requirements for establishing and following</p>

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<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
	<p>Globes rating systems.</p> <p>Performance targets are also evaluated using <a href="http://www.eere.energy.gov/femp">www.eere.energy.gov/femp</a> Building Life-Cycle Costing Program (BLCC 5.3-06), Target Base Energy Budget, GREENGUARD <a href="http://www.greenguard.org">http://www.greenguard.org</a> low emission products for interior spaces, and industry Best Management Practices</p> <p>For projects meeting HHS approval thresholds the IPT will:</p> <ul style="list-style-type: none"> <li>• Establish and monitor performance goals consistent with the sustainability strategy for the project and document in the FPAA with the HHS Sustainability Checklist.</li> <li>• Establish goals at pre-project planning and identify specific technologies to be considered</li> <li>• Determine the level of</li> </ul>	<p>verify measure of performance by either Leadership in Energy and Environmental Design (LEED) or Green Globe certification and life cycle cost analysis.</p>	<p>IPT may establish additional performance goals specific to each project. The performance goals shall consider all phases of the buildings life cycle. Additional meetings are required throughout the project to ensure that the goals are implemented.</p>	<p>these goals have been included in the latest draft of the NIH Design Requirements Manual (DRM).</p> <p>FPAA sustainability checklists for all new projects are reviewed by the Division of Environmental Protection for compliance with goals and targets before submission to HHS for approval.</p> <p>Standard operating procedures are currently being reviewed for revisions necessary to meet the goals for existing buildings.</p> <p>An assessment study is in progress to develop baseline data for laboratory and office buildings for use in setting project specific goals. The data will be available early in 2Q08.</p>

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**Matrix of Current Status of Implementation within Landholding OPDIVs**

	<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
		<p>appropriate certification under LEED™</p> <ul style="list-style-type: none"> <li>• Coordinate and incorporate EMS plans</li> </ul> <p>For projects under the HHS approval thresholds, CDC utilizes a Project Evaluation Ranking Tool (PERT) to coordinate a project's impact on/with environmental, energy, sustainable, and EMS programs as well as the Agency's asset management plan. PERTs are scored by a CDC Asset Management Team (AMT).</p>			
<a href="#">Considers all stages of the building's lifecycle, including deconstruction.</a>	The performance goals shall include Life Cycle Cost Analysis (LCCA).	<p>Refer to responses above.</p> <p>CDC performance goals include the IPT and Project team performing appropriate Life Cycle Cost Analysis (LCCA) for systems identified by the teams.</p>	FDA's design guidelines will require the Integrated Project Team (IPT) to use building life-cycle analysis on all projects. The IPT shall list sustainable design features where applicable, for all new and major renovations projects, comparing additional first cost against payback period regardless of how long or short the payback period may be, with a goal of designing sustainable projects with no additional first cost expenditures. The IPT shall	Life cycle costs are evaluated and considered including deconstruction of the new facility. Demolition of an existing facility that is replaced by a new facility is planned using principles of sustainability.	The proposed NIH policies, design criteria and Environmental Management Plans relating to facility sustainability are inherently focused upon lifecycle performance. Protocols for facility assessment, remediation of contaminants, recycling of construction debris and waste minimization during decommissioning and deconstruction activities are currently in place and being implemented.

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**Matrix of Current Status of Implementation within Landholding OPDIVs**

<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
		<p>consider conducting “trade-off” exercise, e.g., taking advantage of southern exposures, improving the energy efficiencies of the windows and walls and spending more on daylighting, thus reducing heating and cooling at the building’s perimeter and reduce the allowance for lighting fixtures, HVAC systems, etc. Protocols for decommissioning (i.e., facility assessments, remediation of contaminants, and waste minimization during decommissioning and deconstruction activities) are currently in place and being implemented. Formal protocol for recycling of construction debris during decommissioning and deconstruction will be established.</p>		<p>FPAA sustainability checklists for all new projects are reviewed by the Division of Environmental Protection for commitment to follow required life cycle assessment methodology.</p>
<p><b>Commissioning. Employ total building 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</b></p>	<p>Each OPDIV shall develop, implement and maintain a commissioning procedure for all new and renovated facilities that meet or exceed the Capital Investment Review Board threshold (\$10M).</p>	<p>CDC guidelines require commissioning for all new capital construction projects. Scope of commissioning to be determined by the project team on renovation and alteration projects. Capital construction projects are to comply with the minimum commissioning requirements of LEED</p>	<p>The FDA design guidelines will require the commissioning of all new buildings and substantial renovations/additions in order to verify that design criteria are met. Commissioning will be performed by a true third party commissioning agent, under contract and supervision of the</p> <p>Current IHS A/E Design Guide Commissioning requirements are outlined below. They will be revised during the 2008 update to comply with LEED EA prerequisite 1 and LEED EA Credit 3:  1. The A/E is responsible for developing the requirements</p>	<p>NIH commissioning requirements are currently being revised and updated for release in a new publication. Integration of these practices in the updated Design Requirements Manual (DRM) has also been recommended.</p> <p>Specifications implementing</p>

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	<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
<p>requirements are met. This should include a designated commissioning authority, 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>Prerequisite 1 for Fundamental Building Systems Commissioning. Laboratory projects and other projects involving systems critical to continual operations are to comply with LEED Additional Commissioning requirements.</p> <p>Commissioning of systems includes:</p> <ul style="list-style-type: none"> <li>• Heating, cooling, ventilation and exhaust systems</li> <li>• Laboratory Equipment tied to HVAC system performance</li> <li>• Electrical Systems including lighting, switchgear, UPS, PDS, generators</li> <li>• Building automation controls, security systems</li> <li>• Fire and Life safety systems</li> </ul> <p>Commissioning process includes:</p> <ul style="list-style-type: none"> <li>• Installation verification</li> <li>• Operational performance</li> </ul>	<p>government. The A/E shall provide commissioning requirements during design, with input from government and commissioning agent. This action is later used to develop the commissioning plan. The third party commissioning agent shall inspect/confirm equipment installation, performance goals and requirements, by operational performance test, functional performance testing and re-testing as required, ultimately providing the government with a commissioning report.</p>	<p>for the building systems commissioning plan during design, and documenting all requirements to be completed by contractor who specialized in commissioning and is not the building construction contractor to ensure that building systems function in compliance with criteria set forth in the Project Contract Documents. The Commissioning Plan combines all system narratives, basis of design, assumptions and calculations for all systems into a single manual. When assembled with required as-built drawings and O&amp;M manuals, this will provide an operating guide for the facility.</p> <p>2. The Building System Commissioning Plan shall be outlined in the 65% construction document phase of the design as a submission separate volume.</p> <p>3. In the final Construction Documents, the A/E shall provide a Division 17 Construction Specification dedicated to Building Systems Commissioning, which will</p>	<p>this Guiding Principle have been incorporated into the NIH Office Fit-Out Guidelines approved in December 2007. These include requirements for commissioning or re-commissioning following projects that add to, disturb or interface with any base building HVAC systems or components (including VAV boxes and ductwork), electrical systems, lighting systems, building automation, and or temperature control. Commissioning will use practices tailored to the size and complexity of the fit out project.</p> <p>Facility condition assessments will be modified to include documentation of the scope and date of commissioning and recommendations for re-commissioning. Policies, plans and procedures of sustainability re-commissioning of existing buildings have not been developed.</p>	<p>Environmental Management</p>

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	test <ul style="list-style-type: none"> <li>• Functional performance test</li> <li>• TAB verification</li> <li>• Re-testing as needed</li> <li>• Commissioning reports</li> <li>• Training</li> </ul>		address the various building systems to be commissioned. The document shall define “The Commissioning Team” which includes a Qualified Commissioning Specialist. 4. Health Care Facility systems includes Chilled water system (chiller, pump & coils control valves), Heating Hot water system (Boiler, pumps & coils control valve), HVAC system (AHUs, VAV box, Ventilation, DDC & duct work), Fire protection & Fire Alarm system, Electrical distribution system and other systems (such as O2, NO, & dental vacuum)	Plans include development of sustainability assessments and re-commissioning procedures.

**II. Optimize Energy Performance**

<p><b>Energy Efficiency.</b>            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. For new</p>	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU, EAct 2005 and EO 13423. Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.             Per EO 13423 improve energy</p>	<p>The current CDC guidelines require compliance with:</p> <ul style="list-style-type: none"> <li>• Executive Order 13423 – January 26, 2007 – Strengthening Federal Environmental, Energy, and Transportation Management</li> </ul> <p>Executive Order 13423 revoked the following</p>	<p><i>Existing Facilities:</i> All FDA projects will be evaluated using the HHS checklist for Existing Facilities. For FDA’s owned facilities, the FDA is currently in the process of initiating ‘Utility Energy Service Contracts (UESC’s) with various utility service providers. The service provider will provide a detailed analysis</p>	<p>EAct 2005 is referenced within the current IHS A/E Design Guide. The 2008 update will include detailed guidance for compliance with EAct 2005 and E.O. 13423 requirements compared to the ASHRAE 90.1-2004 as base of energy guideline referenced in the current IHS A/E Design Guide. The A/E guide also</p>	<p>The energy cost reduction requirements have been incorporated into the current draft of the updated Design Requirements Manual (DRM).             Standard operating procedures are currently being reviewed for changes needed to address this guiding principle requirement in existing</p>
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<p>construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Except Low-Rise Residential Buildings. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.</p>	<p>efficiency and reduce greenhouse gas emissions through reduction of energy intensity by 3% annually through the end of FY 2015 or 30% by the end of FY 2015, relative to the baseline of energy use in FY 2003.</p> <p>Ensure renewable electricity consumption meets EPAAct2005 goals of No Less Than:</p> <ul style="list-style-type: none"> <li>o 3% in FY 2007-2009</li> <li>o 5% in FY 2010-2012</li> <li>o 7.5% in FY 2013 and thereafter</li> </ul> <p>In addition, EO 13423 requires that at least half of renewable energy comes from new (after 1/1/1999) renewable sources.</p> <p>Per EPAAct 2005 purchase Energy Star and FEMP recommended products where cost effective or meets agency functional requirements. This includes premium efficient products such as electric motors, air conditioning, and refrigeration equipment procurements.</p>	<p>Executive Orders previously required by CDC for compliance:</p> <ul style="list-style-type: none"> <li>• Executive Order 13123 – June 3, 1999 – Green the Government Through Efficient Energy Management</li> <li>• Executive Order 13148 – April 21, 2000 – Greening the Government Through Leadership in Environmental Management</li> <li>• Executive Order 13149 – April 21, 2000 – Greening the Government Through Federal Fleet and Transportation Efficiency</li> </ul> <p>CDC’s guidelines also include the following requirements:</p> <ul style="list-style-type: none"> <li>• Evaluate all energy conservation measures and energy recovery schemes on a life cycle cost basis.</li> <li>• Design and specify energy efficient systems and energy recovery for the HVAC systems. Energy recovery for lab exhaust air is not permitted.</li> </ul>	<p>of the existing building components (infrastructure, mechanical, electrical and plumbing), thus providing a ‘whole building performance’ evaluation/audit, which in turn will establish existing baseline conditions and targets. The evaluation/audit will provide existing component operations, equipment and component efficiency and energy demands. Ultimately providing designs to earn the Energy Star (trade mark) targets. Upon completion of the detailed audits, the service provider will list recommended actions in the form of ‘proposed energy conservation measures’ (ECM’s). These measures may include integrated HVAC design, energy recovery devices, and improved equipment efficiency. These measures will be used to reduce the overall energy intensity by 30% through the end of FY 2015, relative to the baseline of energy use in FY 2003.</p> <p><i>New Facilities:</i> All FDA projects will be evaluated using</p>	<p>establishes energy efficiencies for staff quarters in accordance with IECC. Each design to earn an Energy Star Rating of 75 or greater.</p>	<p>buildings.</p> <p>An assessment study is in progress to develop assessment methods and baseline energy use intensity data for laboratory and office buildings for interim use in setting project specific goals until specific data becomes available for each building. The data should be available in late December 2007.</p>

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<p>Progress and implementation plan shall be reported in Annual Energy Report.</p>	<ul style="list-style-type: none"> <li>• Heat wheels and other enthalpy recovery devices are preferred recovery schemes. All energy recovery schemes, including sensible-only schemes may be acceptable.</li> <li>• All design and construction shall comply with the Energy Policy Act of 2005 (EPAct2005) and Executive Order 13423.</li> <li>• Develop the Base Energy Budget from the Building Program, Conceptual Design, or other specific instructions. The budget represents a minimum level of efficiency to be achieved in the final design.</li> <li>• Incorporate in the final design those design alternatives and energy conservation options identified by the design team that: are found to have returns on investment acceptable to CDC; that optimize the building</li> </ul>	<p>the HHS sustainable checklist for new facilities. For FDA new facilities, all design and construction elements, where applicable shall comply with the Energy Policy Act of 2005. These elements shall include a review of all technologies, including, but not limited to heat recovery devices, i.e., heat wheels and other enthalpy devices. The A/E shall establish a whole building performance target for the intended use of the proposed facility as compared with a similar building and use. The A/E is to utilize the most energy efficient equipment available and/or application to reduce overall energy intensity by 30% through the end of FY 2015, relative to the baseline of energy use in FY 2003. Design facility utilizing LEED and/or Green Globe requirements.</p>		



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	<p>design within the project budget limitations; and achieve the desired LEED rating or achieve the same level as defined by LEED criteria.</p> <ul style="list-style-type: none"> <li>• Evaluate and incorporate cost effective renewable energy technologies.</li> <li>• Require Energy Star certified products.</li> <li>• Consider more efficient glazing and shading alternatives.</li> <li>• Consider increased energy efficiency through architecture, equipment, equipment operations, pipe and duct insulation thickness, and similar components and methodologies.</li> <li>• Consider increased use of variable frequency drives, run around loops, economizers, heat recovery systems, and similar alternatives.</li> </ul>				
<p><b>Measurement and Verification.</b> In accordance with DOE guidelines issued under section 103 of the</p>	<p>Each OPDIV shall install metering consistent with the MOU and EAct 2005. HHS Metering Policy, Compliance</p>	<p>The CDC has the following guidelines: Meter all building utility</p>	<p>The proposed FDA guideline shall include instruction to install building level utility meters in new major</p>	<p>IHS issued a Metering Implementation Plan in July 2006 establishing milestones for achieving the EAct 2005</p>	<p>An assessment study is in progress to develop assessment methods and baseline energy use intensity</p>

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<p>Energy Policy Act of 2005 (EPAAct), install building level utility meters in new major construction and renovation projects to track and continuously optimize performance. Compare actual performance data from the first year of operation with the energy design target. After one year of occupancy, measure all new major installations using the Energy Star® Benchmarking Tool for building and space types covered by Energy Star®. Enter data and lessons learned from sustainable buildings into the High Performance Buildings Database.</p>	<p>Document, and Implementation Plan completed and distributed to OPDIVs. Verification shall be made of actual performance data with energy design target.</p>	<p>services, including but not limited to, electrical, chilled water, steam, and potable water.</p> <p>Consider extended commissioning of systems once the facility has been occupied, for verification and comparison of system performance with design goals and parameters.</p>	<p>construction and renovation projects to tract and continuously optimize performance in accordance with DOE guidelines issued under section 103 of EPAAct05. This will be addressed in FDA’s metering plan, which is under development. The metering plan shall emphasize keys to effective use of metering, such as a combination use of meters with automated data collection devices. All projects utilizing the UESC and ESPC contracting methods will incorporate advanced metering.</p>	<p>advanced metering requirements. A Metering Plan has been drafted for adoption in the OEHE Technical Handbook outlining requirements establishing which installations and sites must be metered and how cost impacts should be budgeted. The Metering Plan also outlines responsibilities within IHS for the accomplishment of specific milestone tasks towards full compliance with EPAAct 2005.</p>	<p>data for laboratory and office buildings for interim use in setting project specific goals until specific data becomes available for each building. The data should be available early in 2Q08.</p> <p>Building level utility metering has been installed in all buildings on the NIH campus. One year of data on actual energy use is being collected to establish the baseline energy use for each existing building. Off-campus facilities are being contacted to determine the status of metering on their buildings.</p> <p>A process for EPA EnergyStar Benchmarking all existing buildings has not been investigated or established. Because most buildings at NIH are Lab and Special Use buildings, the EPA EnergyStar Benchmarking tool, which is designed for simpler, more conventional building types, may not be an accurate measure of performance for most NIH buildings.</p>

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Integration of these measurement and verification requirements in the updated Design Requirements Manual (DRM) has been recommended.

**III. Protect and Conserve Water**

<p><b>Indoor Water.</b> Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.</p>	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU, EPA Act 2005 and EO 13423.</p> <p>Beginning in FY 2008, per EO 13423 reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015 or 16 percent by the end of FY 2015.</p> <p>Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.</p>	<p>The current CDC guidelines require compliance with the following Executive Order:</p> <p>Executive Order 13423, Sec. 2 – Reduce Water Consumption Intensity.</p> <p>The current CDC guidelines also include:</p> <ul style="list-style-type: none"> <li>• Conduct distribution system audits, leak detection and repair.</li> <li>• Post water awareness information to encourage conservation from building occupants.</li> <li>• Use low flow faucets with aerators or flow restrictors. Use low flow shower heads, toilets and urinals.</li> <li>• Re-circulate process cooling water.</li> </ul>	<p>The FDA shall include in its design guidelines the strategy to install fixtures (low flow faucet aerators, no water urinals, toilets, ultra low flow shower heads, etc.) that minimize potable water use to reduce the water consumption intensity to meet the E.O. 13423 requirements. The FDA guidelines shall include the requirement to use Energy Star and/or FEMP designated fixtures.</p>	<p>The IHS has draft guidelines which includes the provisions of the Energy Policy Act of 1992. The new IHS A/E Design Guide will incorporate the requirements of E.O. 13423 and require designs to earn LEED credit WE 3.1.</p>	<p>General requirements to follow all Guiding Principles, including conservation and protection of water have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p> <p>The NIH Division of Environmental Protection will be providing specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p> <p>Standard operating procedures are currently being reviewed for revisions needed to address this guiding principle sustainability requirement in existing buildings.</p>
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		<ul style="list-style-type: none"> <li>• Install an automatic boiler/steam blowdown system based on water quality to better manage the treatment of boiler make-up water.</li> <li>• Capture air handling unit condensate water for irrigation or cooling tower makeup water.</li> </ul>			A pilot project to evaluate criteria and methods for assessing the compliance of existing buildings with the all Guiding Principles is also in progress and will be completed by January 2008.
<b>Outdoor Water.</b> Use water efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU, EPAAct 2005 and EO 13423.</p> <p>Beginning in FY 2008, per EO 13423 reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015 or 16 percent by the end of FY 2015.</p> <p>Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.</p>	<p>The current CDC guidelines require compliance with the following Executive Order:</p> <p>Executive Order 13423, Sec. 2 – Reduce Water Consumption Intensity.</p> <p>The current CDC guidelines also include:</p> <ul style="list-style-type: none"> <li>• Use low maintenance plant material, climate appropriate and drought resistant.</li> <li>• Use of potable water for irrigation is prohibited. Provide collection and storage of rainwater and non laboratory building grey water for irrigation if required.</li> <li>• Collect and store cooling</li> </ul>	<p>The FDA guidelines shall include provisions to use low maintenance plant species (native turf and wildflowers). Analyze the use of rain water collection systems for use in lawn irrigation systems. FDA is currently considering the feasibility of a gray water use system at its Jefferson Laboratories Complex.</p>	<p>The IHS has a policy to use native plants and no outside irrigation. The new IHS A/E design Guide will require designs to earn LEED credit WE 1.1 and where practicable, WE 1.2.</p>	<p>This guiding principle is largely met by NIH current strategies for installation and maintenance of landscaping, control of grading and runoff from construction sites and increasing use of other low impact development practices. Except in small courtyard areas no permanent irrigation systems are used, and 50 percent of these have been eliminated in the last year. Implementation of the NIH Urban Forest Conservation Plan is increasing no-mow and forest duff covered areas, planting of native plants that do not require irrigation and installation of storm water buffers. Compliance with state storm water and sediment</p>

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	condensate for cooling tower make-up or irrigation			erosion assures reduction of water runoff and pollution. A gray water reuse system has been installed at the NIH Animal Center in Poolesville.

**IV. Enhance Indoor Environmental Quality**

<p><b>Ventilation and Thermal Comfort.</b> Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality.</p>	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU and EPA Act 2005. Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.</p>	<p>The CDC guidelines include the ASHRAE Standard 55-2004 and 62.1-2004 for all occupied spaces. The guidelines for laboratory spaces, vivariums, and computer rooms are more stringent.</p> <p>The current guidelines also include:</p> <ul style="list-style-type: none"> <li>Maintain standard ventilation rates per ASHRAE standards and applicable codes. Above this minimum, including air-economizer systems, modulate outside air quantities (ventilation) by comparing levels of indoor versus outdoor contamination. For specific spaces where occupancy rates are variable (e.g. auditoriums</li> </ul>	<p>The FDA guideline shall include the ASHRAE Standard 55-2004 and 62.1-2004 for all occupied spaces. Laboratory requirements vary according to use, but are more stringent, and require 100% outside air. All ventilation rates shall meet and/or exceed ASHRAE minimum standards. Check air flow rates to eliminate cross contamination where required. External devices (e.g., chemical fume hood exhaust stacks, gas vents, etc.) that produce fumes or other toxic chemicals shall meet and/or exceed minimum distances to reduce the potential for re-entrainment via fresh air intakes.</p>	<p>Compliance with ASHRAE-55 and 62.1-2004 is considered to be standard practice on all IHS new construction projects. The IHS A/E Design Guide will explicitly reference the standard in the 2008 update. We will consider ASHRAE HVAC Design Manual for Hospitals and Clinics (2003) and the soon to be released ASHRAE 170 Ventilation of Health Care Facilities.) IHS complies with AIA Guidelines ventilation requirements for health care environments. The new IHS A/E Design Guide will require earning LEED EQ 7.1 and implementing a moisture control strategy.</p>	<p>General requirements to follow all Guiding Principles, including ventilation and thermal comfort have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p> <p>Specifications implementing this Guiding Principal have been incorporated into the NIH Office Fit-Out Guidelines approved in December 2007. These include requirements for all HVAC to meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy Use and ASHRAE 62.1-2004 Ventilation for Acceptable Indoor Air Quality.</p> <p>The NIH Division of Environmental Protection will</p>
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	<p>and conference rooms)  demand controlled ventilation is desired on a zone basis. CO2 concentrations are a recognized indicator of occupancy levels, but other contaminants such as CO, VOCs, NOX, smoke, etc should also be used to control the outside air flow rates. Self calibrated systems are preferred.</p> <ul style="list-style-type: none"> <li>• Evaluate all systems and air distribution devices for ventilation effectiveness.</li> <li>• Laboratories and vivariums shall be ventilated with 100% outside air.</li> <li>• Design ventilation ducts and shafts for 100% outside-air to the air handlers (this is also required by the outside-air economizer control requirement).</li> <li>• Exhaust flow rates from restrooms, locker rooms, janitor closets, fitness centers, and similar spaces shall correspond to</li> </ul>			<p>be providing additional specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p> <p>Standard operating procedures are being reviewed for revisions needed to address this guiding principle sustainability requirement in existing buildings.</p> <p>A pilot project to evaluate criteria and methods for assessing the compliance of existing buildings with the all Guiding Principles is also in progress and will be completed by January 2008.</p>

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		minimum 10 air changes per hour.			
<b>Moisture Control.</b> Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination.	Each OPDIV shall develop guidelines to incorporate a moisture control strategy in each project that considers design, construction, operations and maintenance.	<p>Current CDC guidelines include:</p> <ul style="list-style-type: none"> <li>• Prior to installation of any carpet, carpet tile, wood, vinyl, rubber or other flooring materials, the moisture emission rate from a substrate concrete slab shall be no greater than 3.0 pounds per 100 square feet per 24 hours.</li> <li>• Provide strategies for controlling moisture during construction and operation of the building.</li> <li>• Consider including exterior envelope as part of the building commissioning.</li> </ul>	The FDA shall include in its guidelines, the establishment and implementation of a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination. Moisture control measures shall include both interior and exterior measures, i.e. proper insulation, proper rain water drainage away from building wall and proper installation of vapor and moisture barriers where applicable. The FDA requirement shall also require proper handling and storage of materials to prevent mold contamination of materials prior to their installation. FDA will consider and formalize strategies for controlling moisture during the operation of buildings.	Moisture control design practices are implemented in IHS projects based upon the geographic location and local climate conditions.	<p>General requirements to follow all Guiding Principles, including provision of a moisture control strategy have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p> <p>Existing specifications in the NIH Design Policy and Requirements Manual provide for control of excessive moisture.</p> <p>The NIH Division of Environmental Protection will be providing more specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p> <p>Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.</p> <p>A pilot project to evaluate</p>

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<p><b>Daylighting.</b>            Achieve a minimum of daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.</p>	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU and EPAct 2005. Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.</p>	<p>The current CDC guidelines include:</p> <ul style="list-style-type: none"> <li>Maximize the amount of daylight to the maximum personnel possible</li> </ul>	<p>The FDA shall include in its guideline the requirement to meet and/or exceed minimum HHS daylighting requirements of 2 percent in 75 percent of all occupied space for visual task. The requirement shall also include manual dimming controls. Where daylighting is not achievable, but minimum daylighting requirements are met, the use of full spectrum bulbs should be considered.</p>	<p>The new IHS A/E Design Guide will require LEED EQ 8.1 option 1 or 2.</p>	<p>criteria and methods for assessing the compliance of existing buildings with the all Guiding Principles is also in progress and will be completed by January 2008.</p> <p>General requirements to follow all Guiding Principles, including day lighting have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p> <p>The NIH Division of Environmental Protection will be providing specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p>
<p><b>Low-Emitting Materials.</b>            Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, carpet systems, and furnishings.</p>	<p>Each OPDIV shall develop guidelines and/or standard specifications to incorporate low emitting materials and products.</p>	<p>The current CDC guidelines include:</p> <ul style="list-style-type: none"> <li>When available products certified as or meeting the same criteria as GREENGUARD indoor Air Quality Certified low emission products be used for flooring, ceiling systems, paints, coatings, insulation, adhesives and wall coverings.</li> </ul>	<p>The FDA guideline and contract specifications shall require materials and products that are low pollutant emissions, including adhesives, sealants, paints, carpet systems and furnishings. Carpet systems must meet or exceed the carpet and rug institute Green Label Indoor quality test program. Composite woods must not contain urea-formaldehyde resins. Paints</p>	<p>The 2008 IHS A/E Design Guide update will require meeting LEED EQ 4.1, EQ 4.2, EQ 4.3, and specifying furnishings with low pollutant emissions.</p>	<p>General requirements to follow all Guiding Principles, including use of low emitting materials have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p> <p>Specifications implementing this Guiding Principle have been incorporated into the NIH Office Fit-Out Guidelines approved in December 2007.</p>



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<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
		<p>and coatings must meet VOC and Chemical limits of Green seal requirements. Specify also, that products when available meet GreenGuard indoor air quality certified low emission products. Adhesives shall meet or exceed minimum VOC limits of the South Coast Air Quality Management District Rule # 1168.</p>		<p>Examples include requirements for carpets, paints and adhesives with low VOC content; carpets meeting Green Label certification; and avoiding use of vinyl wall coverings.</p> <p>The NIH Division of Environmental Protection will be providing specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p>
<p><b>Protect Indoor Air Quality during Construction.</b> Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor’s National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 1995. 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. After occupancy, continue flush-out as necessary to</p>	<p>Each OPDIV shall follow OSHA and SMACCNA guidelines to ensure indoor air quality during construction. As a minimum each OPDIV shall follow the MOU requirements for flush-out.</p>	<p>The current CDC guidelines include:</p> <ul style="list-style-type: none"> <li>Comply with LEED Indoor Environmental Quality Credit 3.2, Construction IAQ management Plan.</li> </ul>	<p>The FDA guidelines and construction contract shall include the requirement of meeting and/or exceeding SMACNA IAQ guidelines for buildings under construction and the proper handling and protection of site materials from moisture. This requirement eliminates the possibility of mold contamination prior to the installation of the material. The requirement shall also require the flush-out of the building until air quality meets or exceed all applicable EPA and OSHA standards, guidelines, etc. Requirement shall provide adequate air flow through</p>	<p>OSHA Guidelines cited in all contracts. Construction Phase IAQ considerations will be addressed in the 200 IHS A/E Design Guide. Update will require meeting LEED EQ 3.1 and EQ 3.2</p> <p>General requirements to follow all Guiding Principles, including protection of indoor air quality during construction have been placed in the latest draft of the NIH Design Requirements Manual currently under review.</p> <p>The NIH Division of Environmental Protection will be providing specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p>

**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

	<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
			building under construction without moving pollutants through work areas. Exterior equipment producing pollutants and/or fumes shall not be located in close proximity of any existing building intake. Dust barriers shall be provided when and where applicable as to isolate specific work areas. Block interior exhaust or isolate existing system components that could cause contamination to day to day operations.		

**V. Reduce Environmental Impact of Materials**

<b>Recycled Content.</b> For EPA-designated products, use products meeting or exceeding EPA’s recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.	Each OPDIV shall develop guidelines and/or standard specifications to incorporate recycled content materials.	The current CDC guidelines require compliance with the following Executive Order, requiring Federal agencies to implement sustainable design principles: <ul style="list-style-type: none"> <li>Executive Order 13423 – January 26, 2007 – Strengthening Federal Environmental, Energy, and Transportation Management.</li> </ul> <p>The CDC guidelines also include:</p> <ul style="list-style-type: none"> <li>The Resource</li> </ul>	The FDA guideline shall require the A/E to specify recycled-content products as designated by the EPA, meeting and/or exceeding the EPA’s recycled content recommendation.	The 2008 IHS A/E Design Guide update will require specifying products that meet or exceed EPA recycled content recommendations and that the design earn LEED MR 4.1.	General requirements to follow all Guiding Principles, including use of recycled content materials have been placed in the latest draft of the NIH Design Requirements Manual currently under review. <p>Specifications implementing this Guiding Principle have been incorporated into the NIH Office Fit-Out Guidelines approved in December 2007. These include a general preference for items with</p>
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**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
	<p>Conservation and Recovery Act requires agencies to buy recycled-content products designated by the EPA. CDC is committed to maximizing the use of recycled and recycled-content materials specified in the construction of Federal building projects. Information on specifying and purchasing recycled-content products can be found at <a href="http://www.epa.gov/cpg">www.epa.gov/cpg</a></p> <ul style="list-style-type: none"> <li>• Where possible specify building products that are manufactured regionally within a radius of 500 miles. For capital projects, 20% of the building materials should be manufactured regionally within a radius of 500 miles when possible. Of these regionally manufactured materials, consider specifying a minimum of 50% that are extracted, harvested, or recovered within 500 miles.</li> </ul>			<p>recycled material content, renewable materials and those sourced locally. Specific requirements for minimum recycled content levels in specific building materials were established for gypsum board (75-100%), framing components (50-100%), hollow meal doors and frames (15-50%), carpeting (25-100%) and furnishings (maximum content available).</p> <p>The NIH Division of Environmental Protection will be providing additional specific guidance in a NIH Sustainable Design Manual to be completed in 2008.</p>

**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

	<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
<b>Biobased Content.</b> For USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.	Each OPDIV shall develop guidelines and/or standard specifications to incorporate bio-based content materials.	The current CDC guidelines require compliance with the following Executive Order requiring Federal agencies to implement sustainable design principles: <ul style="list-style-type: none"> <li>Executive Order 13423 – January 26, 2007 – Strengthening Federal Environmental, Energy, and Transportation Management</li> </ul>	The FDA guideline will require that 5% of the products used meet or exceed USDA's bio-based content recommendations. When using wood, 50% of wood-based materials shall be certified by the Forest Stewardship Council guidelines. Require the use of bio-based products made from rapidly renewable resources and certified sustainable wood products.	The 2008 IHS A/E Design Guide update will require designs to earn LEED MR 6 and MR 7.	General requirements to follow all Guiding Principles, including use of low emitting materials are included in the latest draft of the NIH Design Requirements Manual currently under review.  Specifications implementing this Guiding Principle have been incorporated into the NIH Office Fit-Out Guidelines approved in December 2007. These include a preference for be given to wood doors with cores composed of agrifiber and/or Certified Wood (as certified by the Forest Stewardship Council) and those that contain no urea formaldehyde.
<b>Construction Waste.</b> During a project's planning stage, identify local recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 50 percent construction, demolition and land clearing waste, excluding soil, where markets or on-	Each OPDIV shall develop guidelines to incorporate a construction waste strategy in each project that meets the minimum 50% construction waste reduction (by either weight or volume)	The current CDC guidelines require compliance with the following Executive Order, requiring Federal agencies to implement sustainable design principles: <ul style="list-style-type: none"> <li>Executive Order 13423 – January 26, 2007– Strengthening Federal Environmental, Energy, and Transportation</li> </ul>	The FDA guideline shall require that 50% of the construction waste (by weight) be diverted from landfill via recycling or re-use, excluding soil.	The 2008 IHS A/E Design Guide update will require designs to earn LEED MR 2.1 where services are available.	Current NIH procedures largely meet the requirements of this guiding principle.  NIH Controlled Material Specifications require recycling of debris from construction projects.  NIH decommissioning protocols require submission of waste minimization and

**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

	<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
site recycling opportunities exist.					recycling plans for major demolition projects and advance approval of recycling facilities.  Procedures to track the amount and percentage of wastes recycled from each project are being developed and tested.
<b>Ozone Depleting Compounds.</b> 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 life cycle impacts. <a href="http://www.epa.gov/air/oaqps/peg_caa/pegcaain.html">http://www.epa.gov/air/oaqps/peg_caa/pegcaain.html</a>	Each OPDIV shall develop guidelines and/or standard specifications to eliminate the use of ozone depleting compounds.	The current CDC guidelines include: <ul style="list-style-type: none"> <li>The use of products and systems (such as paint, adhesives, sealers, sealants, floor tile, equipment, etc.) containing chlorinated fluorocarbons (CFCs) is prohibited on all projects.</li> <li>For capital construction projects it is preferred to install base building level HVAC, refrigeration equipment and fire suppression systems that do not contain hydro chlorofluorocarbons, HCFCs or Halon. Carefully consider the trade-offs between various CFC and Halon substitutes.</li> </ul>	The FDA guidelines shall require zero usage of CFC's refrigerants in HVAC and refrigeration systems and the elimination of use of ozone depleting compounds during and after construction, consistent with the Montreal Protocol and/or Title VI of the Clean Air Act Amendment of 1990.	The current guidelines include: Replace any CFC systems. IHS prohibits the installation of HVAC, refrigeration equipment and fire suppression systems that contain HCFCs or Halon. The 2008 IHS A/E Design Guide update will require designs to earn LEED EA 4.	General requirements to follow all Guiding Principles, including prohibitions on the use of ozone depleting compounds have been placed in the latest draft of the NIH Design Requirements Manual currently under review.  The NIH Division of Environmental Protection will be providing specific guidance in a NIH Sustainable Design Manual to be completed in 2008.  A pilot project to evaluate criteria and methods for assessing the compliance of existing buildings with the all Guiding Principles is also in progress and will be completed by January 2008.

**APPENDIX J**  
**Matrix of Current Status of Implementation within Landholding OPDIVs**

<b>Health and Human Services (HHS)</b>	<b>Centers for Disease Control &amp; Prevention/ ATSDR (CDC)</b>	<b>Food and Drug Administration (FDA)</b>	<b>Indian Health Service (IHS)</b>	<b>National Institutes of Health (NIH)</b>
	<ul style="list-style-type: none"> <li>For renovation or alteration projects check HVAC, refrigerant equipment and fire suppression systems before beginning design work. Replace any CFC systems. It is preferred to install HVAC, refrigeration equipment and fire suppression systems that do not contain HCFCs or Halon. Carefully consider the trade-offs between the various CFC and Halon substitutes.</li> </ul>			

## APPENDIX K

### Integration of Sustainable Practices into Environmental Management Systems

#### Introduction

Many programs that involve facilities overlap with significant impacts on one program or another. Thus is the case with the sustainable buildings programs and environmental management systems (EMS) being implemented at the Department of Health and Human Services (HHS) land-holding Operating Divisions (OPDIVs). HHS has the following land-holding OPDIVs:

- Centers for Disease Control and Prevention (CDC)
- Food and Drug Administration (FDA)
- Indian Health Services (IHS)
- National Institutes of Health (NIH)

These HHS organizations with real property management responsibility perform, to varying degrees, day-to-day prioritization and execution of the facilities asset management program, including master planning; facilities planning and design, construction, leasing, operations and maintenance, and space utilization; and management programs (environmental management, historic preservations, energy management, and occupational safety and health. The OPDIVs execute the policies developed in conjunction with the HHS Office for Facilities Management and Policy (OFMP) and all other federal real property requirements whether through law, executive order or otherwise stipulated. The OPDIVs develop and implement internal procedures necessary to comply with those requirements and to ensure coordination with overlapping programs within their OPDIVs such as EMS.

An Environmental Management System (EMS) is a formalized method for managing a facility's activities that impact the environment. It is not a report or a plan but, rather, a day-to-day way to manage environmental programs with a view toward continuous and long-term improvement. It is based on a defined set of standards but affords a great deal of flexibility to tailor implementation in a way that best meets individual organizational needs. Executive Order (E.O.) 13148 from April of 2000 required all Federal Agencies to determine appropriate facilities for implementing EMS. E.O. 13423 ( "Strengthening Federal Environmental, Energy, and Transportation Management", January 24, 2007) builds upon this. Section 3(b) of E.O. 13423 requires that EMSs serve as the primary mechanism for achieving compliance with all aspects of the order (of which Sustainable Buildings is a major element). As a result, facilities must begin efforts to integrate their Sustainable Buildings programs into their respective EMS.

It is important to note however, that while the Sustainable Buildings Program will be aligned with the facility's EMS, operational control will not change. The organization's current proponents for building planning & construction will still maintain full control and decision-making authority over their programs. Exhibit K.1 lists the facilities that currently have EMS instituted at the four different land-holding OPDIVs.

**APPENDIX K**  
**Integration of Sustainable Practices into Environmental Management Systems**

Exhibit K.1

OPDIV	FACILITY	LOCATION		
		CITY	STATE	ZIP
CDC	Roybal	Atlanta	GA	30333
CDC	Chamblee	Atlanta	GA	30341
CDC	Lawrenceville	Lawrenceville	GA	30245
CDC	Anchorage	Anchorage	AK	99508
CDC	Spokane	Spokane	WA	99207
CDC	Fort Collins	Fort Collins	CO	80522
CDC	Taft & Hamilton Bldgs	Cincinnati	OH	45226
CDC	Pittsburgh	Pittsburgh	PA	15236
CDC	Morgantown	Morgantown	WV	26505
CDC	San Juan	San Juan	PR	00920
FDA	White Oak Campus	Silver Spring	MD	20993
IHS	Hastings Indian Med Cen	Tahlequah	OK	74464
IHS	San Xavier Health Cen	Tucson	AZ	85746
NIH	NIH HQ	Bethesda	MD	20892
NIH	NI Env Health Services	Research Triangle	NC	27709
NIH	Rocky Mountain Labs	Hamilton	MT	59840
NIH	NIH Facilities at FT Detrick	Frederick	MD	21702
NIH	NIH Animal Center	Poolesville	MD	20837

Due to the unique mission of each OPDIV the process to coordinate activities occurring with the Sustainable Buildings Program and the Environmental Management Systems vary. Nevertheless, each OPDIV's day-to-day goal is the same, bridge between programs to ensure compliance with environmental requirements. The following is a report on the status of each land-holding OPDIV in regards their approach to coordinating the Sustainable Buildings Program with EMS at appropriate facilities.



## **APPENDIX K**

### **Integration of Sustainable Practices into Environmental Management Systems**

#### **CDC**

CDC's Environmental Management System (EMS) is an organized approach for its environmental practices during routine and emergency operations. Our EMS focuses on practices that improve and protect the environment for CDC's campuses and our neighbors in the community.

Sustainable buildings contribute to EMS success by offering borrowed light (exterior and interior windows), motion sensitive office lights, and materials that reduce environmental impacts and promote pollution prevention through best management practices. Some of these best management practices include reduced energy consumption, improved environmental protection, green procurement, native and drought-tolerant landscaping, and effective storm water management.

Coordination of the sustainable buildings program and the EMS is a joint effort involving

- CDC's Environmental Quality Council (EQC)
- Office of Health and Safety (OHS)
- Buildings and Facilities Office (BFO) Asset Management Teams (AMT)

Objectives and targets established for the EMS are presented with recommendations to the EQC. The EQC is comprised of members from varying programs at CDC, including the Office of Health and Safety (OHS) and BFO. The EQC makes a final determination of those aspects and impacts that should be included as objectives and targets for inclusion in the EMS. The OHS Environmental Protection Section maintains CDC's EMS program.

BFO has established a point of contact to serve as the main proponent for the Sustainable Buildings portion of the EMS. The point of contact resides in the BFO Office of the Director (OD) and is closely involved with facilities planning and construction. The point of contact works closely with the OHS Environmental Protection Section to coordinate over arching matters related to the EMS.

As an operational control, BFO AMTs utilize the Project Evaluation Ranking Tool (PERT) to evaluate facility projects under the HHS approval thresholds. A ranking factor to be evaluated is the project's impact to the EMS objectives. Projects that have positive impacts receive a positive score, no impacts receive a score of zero, and negative impacts receive a negative score. In this manner, the AMT can coordinate work related to the targets included in the EMS through the determination of the EQC and possibly make adjustments in project scope as may be accommodated.

The CDC/BFO Design and Construction Standards were released in 2004. Included in these standards are sustainable requirements for facilities. 100% of capital and renovation projects are developed and executed in accordance with these standards. The standards provide daily guidance to project teams and fulfill the EMS objective to minimize infrastructure construction and development impacts.

## **APPENDIX K**

### **Integration of Sustainable Practices into Environmental Management Systems**

Monitoring for progress at the BFO level is integrated with the PERT. At the completion of facilities projects, the Project Team is to provide an analysis of results based on the scores given in the initial PERT review. Final results against the baseline score are managed through the CDC Integrated Facility Management System (IFMS). With this monitoring process, BFO will be able to trend how well progress is being made to integrate EMS objectives and targets into projects. CDC will continue to refine the process as trending data becomes available at the completion of facility projects.

#### **FDA**

The Food and Drug Administration (FDA) has developed and began implementing environmental management systems (EMS) at two appropriate facilities to date. These two facilities are the White Oak Federal Research Center in Silver Spring, MD and the Jefferson Laboratories Complex (JLC) in Jefferson, AR.

The White Oak Federal Research Center (White Oak) is a General Services Administration (GSA) owned site. GSA, using funding through the GSA appropriation, is designing and constructing federally owned buildings to consolidate FDA at White Oak. Newly constructed buildings at White Oak will replace all the existing fragmented facilities which support the Office of the Commissioner (OC), the Office of Regulatory Affairs (ORA), the Center for Drug Evaluation and Research (CDER), the Center for Devices and Radiological Health (CDRH), the Center for Biologics Evaluation and Research (CBER) and offices for the Center for Veterinary Medicine (CVM). The final site will consist of new laboratories, office buildings and support facilities. As these buildings are being newly constructed, GSA is responsible for ensuring Federal sustainability requirements are met. The current EMS at White Oak does not include GSA operations in its scope. In the future, FDA plans to partner with GSA to develop a comprehensive EMS at the site. As part of this process and as FDA begins to contemplate renovations in existing buildings, FDA will incorporate specific goals and targets, management controls and reporting requirements at the White Oak facility level.

The FDA self-declared the EMS at its JLC site in September 2007, which concluded the development process. As implementation begins, the DHHS guidance document **“Approach for Integrating Sustainable Buildings Programs and DHHS Environmental Management Systems”** will be shared with the facility EMS Coordinator. The EMS Coordinator will be asked to work with the on-site facilities planning and construction representative responsible for sustainability to ensure that the local sustainable buildings program is integrated into the EMS to include incorporating specific goals and targets, management controls and reporting requirements at the JLC facility level.

Consistent with the FDA’s interpretation of the intent of E.O. 13423, a project has been initiated in FY 2008 to develop an agency-wide EMS framework. This framework would be used as the basis for any additional appropriate facilities identified in the future as well

## **APPENDIX K**

### **Integration of Sustainable Practices into Environmental Management Systems**

as for the existing appropriate facilities noted above. The integration of sustainability in this EMS framework will be included as part of this project.

#### **IHS**

The Indian Health Service has developed and implemented environmental management systems in a decentralized manner. The IHS has self-declared Comprehensive Healthcare Environmental Management Systems (CHEMS) at two facilities (Exhibit K.1). In establishing these management systems, each facility conducted a local evaluation to determine environmental aspects and significant impacts. A template developed by IHS HQ was provided to assist with this process and aspects of sustainability were included in this template. After identifying significant environmental impacts, each facility prioritized the findings and determined which issues would be addressed in a 12 month time frame. Both sites identified sustainability-related targets and objectives to reduce energy use and paper consumption, and increase recycling of paper and cardboard. One site included a target and objective to reduce water consumption.

The new IHS A/E Design Guide will include sustainable design guidance in the areas identified through implementation of the E.O. 13423, Federal Leadership in High Performance and Sustainable Buildings MOU, LEED and /or Green Globes. The Integrated Project Team shall establish performance goals in compliance with the guiding documents and EMS targets and objectives. The performance goals shall consider all phases of the buildings life cycle. All IHS designs are developed according to the A/E Guide.

Each facility implementing a CHEMS locally determines the targets and objectives based on evaluation of local environmental aspects and significant impacts. Items related to sustainability in this evaluation are detailed in the attached tool used by IHS facilities implementing CHEMS. Sustainability targets have been set and are being monitored.

#### **NIH**

NIH's approach has been to establish EMS working groups focused on facility sustainability. The groups have met several times and drafted Environmental Management Plans (EMPs) for major phases of the facility life cycle: design and construction; lease acquisition; and decommissioning. EMPs for major campuses have also been drafted to cover all aspects and impacts of facility operation and maintenance. The EMPs list annual targets and five year goals applicable to all NIH facilities.

The NIH Division of Environmental Protection has also made a proposal to the HHS Sustainability Working Group to add a requirement for review and consideration of OPDIV EMS goals and targets to the FPAA sustainability checklist in a new Section VI (Conformance with Local Requirements). The revised checklist will be a primary EMS management control measure listed in the applicable EMPs to ensure full incorporation of sustainability features in major facility related projects.

**APPENDIX L  
HHS 2007 Summary of Owned and Leased Assets**

	OWNED		LEASED		All Buildings	
	# buildings	aggregate GSF	# buildings	aggregate GSF	# buildings	aggregate GSF
<b>Total</b>	<b>1,230</b>	<b>25,657,807</b>	<b>751</b>	<b>13,152,385</b>	<b>1,981</b>	<b>38,810,192</b>
5,000 sq ft or more	379 30.8%	24,391,894 95.1%	289 38.5%	12,364,193 94.0%	668 33.7%	36,756,087 94.7%
Less than 5,000 sq ft	851 69.2%	1,265,913 4.9%	462 61.5%	788,192 6.0%	1,313 66.3%	2,054,105 5.3%

Excludes disposed, excess and inactive assets  
 Excludes Land, Structures, and Dormitory/Barracks and Housing buildings.  
 Excludes duplicate listings wherever possible.

**APPENDIX M**  
**HHS 2007 Sustainability Progress Report**

*Instructions for use: Report shall be a compilation of all projects incorporating sustainable design principles. Data shall be collected from Sustainability Checklist and submitted semi-annually. Project is entered only in its current phase, i.e., once a project moves into construction do not report in design. Unless Sustainability Checklist documents a waiver for a specific element, all elements within a Guiding Principle must be met to get credit for the Guiding Principle.*

<b>New Projects<sup>1</sup></b>									
<b>Phase</b>	<b># of Projects</b>	<b># Certified</b>	<b>Total # in Compliance<sup>2</sup></b>	<b>Level of Compliance<sup>3</sup></b>					
				20	40	60	80	100	
<i>Siting</i>	4	3	4			2	1	1	
<i>Design<sup>4</sup></i>	9	3	7		4	1	2	2	
<i>Construction<sup>5</sup></i>	1	1	1				1		
<i>Renovations<sup>6</sup></i>									
<i>End of Life<sup>7</sup></i>									
<b>Lease Actions<sup>8</sup></b>									
<b># in Progress</b>	<b># Awarded</b>	<b># Certified</b>	<b>Total # in Compliance<sup>2</sup></b>	<b>Level of Compliance<sup>3</sup></b>					
				20	40	60	80	100	
4	10	0	3			2	1		
<b>Existing Facilities (in use)<sup>9</sup></b>									
<b>Total Inventory</b>	<b># of Facilities Assessed</b>	<b># Recommissioned</b>		<b>Level of Compliance<sup>3</sup></b>					
				20	40	60	80	100	
<i>HHS Owned</i>	1,230	2	0		1	1			
<i>Delegated<sup>10</sup></i>	2	0	0						

- 1 Report all new construction or major renovation projects for which planning and design were initiated in FY 2007.
- 2 Total # in Compliance as measured by the Sustainability Checklist for Construction and Major Renovations or the Sustainability Checklist for Leasing.
- 3 Level of compliance is defined as the percent of facilities meeting the Guiding Principles with each principle valued at 20%. If one principle met, level of compliance is 20%; if two principles are met, level of compliance is 40%.
- 4 Project compliance shall be measured from Part 1 of the Sustainability Checklist and reflect anticipated design.
- 5 Project compliance shall be measured from Part 2 of the Sustainability Checklist and reflect actual construction.
- 6 At this time major renovation projects shall be captured under design and construction using the Sustainability Checklist as noted above.
- 7 To capture compliance at decommissioning and demolition/disposal, a Sustainability Checklist shall be completed.
- 8 Report only those lease actions initiated after issuance of E.O. 13423 on January 26, 2007.
- 9 Identify total inventory in first column; level of compliance is measured for only those facilities that have been assessed and/or recommissioned.
- 10 GSA Owned facilities where HHS is the sole tenant and for which HHS has been delegated O&M responsibility.

**APPENDIX N**  
**Abbreviations and Acronyms**

ARIS	Automated Real Property Inventory System
EMS	Environmental Management Systems
FPAA	Facility Project Approval Agreement
GSA	General Services Administration
HHS	Department of Health and Human Services
IDIQ	Indefinite delivery / indefinite quantity
IEQ	Indoor Environmental Quality
IP	Implementation Plan
IPT	Integrated Project Team
LEED	Leadership in Energy and Environmental Design
MOU	Memorandum of Understanding
NLT	No later than
OA	Occupancy Agreement
OFEE	Office of the Federal Environmental Executive
OFMP	Office for Facilities Management & Policy (HHS)
O&M	Operations & Maintenance
OMB	Office of Management and Budget
OPDIV	Operating division (within HHS)
PDRI	Project Definition Rating Index
POR	Program of Requirements
RAMP	(HHS) Real Property Asset Management Plan
SFO	Solicitation for Offers
WBDG	Whole Building Design Guide