DEPARTMENT OF THE ARMY
ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS, ENERGY AND ENVIRONMENT)
110 ARMY PENTAGON
WASHINGTON, DC 20310-0110

SAIE

16 DEC 2013

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: Sustainable Design and Development Policy Update

1. References:

a. Memorandum, ASA(IE&E), 27 Oct 2010, subject: Sustainable Design and Development Policy Update (Environmental and Energy Performance).

b. Energy Policy Act of 2005, 8 Aug 2005 (EPAct 05).

c. Energy Independence and Security Act of 2007, 19 Dec 2007 (EISA 2007).

d. Executive Order (EO) 13423, Strengthening Federal Environmental, Energy, and Transportation Management, 24 Jan 2007.

e. EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 5 Oct 2009.

f. Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, Memorandum of Understanding (MOU), 6 Mar 2006, and 1 Dec 2008 update, "High Performance and Sustainable Building Guidance."

g. Unified Facilities Criteria (UFC) 1-200-02 High Performance and Sustainable Buildings Requirements, 1 Mar 2013.

h. UFC 2-100-01: Installation Master Planning, 15 May 2012.

i. USACE Circular 1165-2-212: Sea-Level Change Considerations for Civil Works Programs, 1 Oct 2011.

j. ANSI/ASHRAE/USGBC/IES Standard 189.1-2011 (ASHRAE 189.1-2011), Standard for the Design of High-Performance Green Buildings (Except Low-Rise Residential Buildings), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and U.S. Green Building Council, May 2012.

k. ANSI/ASHRAE/IESNA Standard 90.1-2010 (ASHRAE 90.1-2010), Energy Standards for Buildings Except Low Rise Residential Buildings, 2010.

l. UFC 3-210-10: Low Impact Development, 15 Nov 2010.

m. Memorandum, Office of the Under Secretary of Defense, 19 Jan 2010, subject: DoD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act.

n. Memorandum, ASA(IE&E), 24 Aug 2012, subject: Energy Goal Attainment Responsibility Policy for Installations.

o. Memorandum, ASA(IE&E), 13 Nov 2012, subject: Exterior Lighting Technologies Policy.

p. Memorandum, ASA(IE&E), 20 Dec 2012, subject: Water Goal Attainment Responsibility Policy for Installations.

q. Department of Defense (DoD) Strategic Sustainability Performance Plan, 20 Sep 2012 or subsequent annual update.

r. Army Regulation (AR) 200-1: Environmental Protection and Enhancement, 13 Dec 2007.

s. Department of Defense Instruction (DoDI) 4165.57, Air Installation Compatible Use Zones, 2 May 2011.

t. Memorandum, Office of the Under Secretary of Defense, 10 Nov 2013, subject: Department of Defense Sustainable Buildings Policy.

2. Purpose. The purpose of this memorandum is to update the sustainable design and development (SDD) policy for Army construction activities. This supersedes the previous policy (reference 1.a).

3. Applicability.

a. This policy applies to all construction activities on Army installations (including government owned/contractor operated installations and tenant activities) regardless of funding source, with the exception of DoD Medical [DoDM] funding and privatization initiatives. This policy also applies to all Army funded construction activities regardless of location; at Joint Installations, the supporting Component guides all construction policy and guidance. For overseas construction activities on permanent basing and in support of contingency operations, this policy will apply to the greatest extent practical considering mission objectives and Host Nation agreements. The following policy will begin immediately for Sustainment, Restoration, and Modernization (SRM) projects, and with incorporation to the extent practicable for new construction/major renovations in FY2014 and full compliance in FY2015.

b. Privatization Initiatives. All housing constructed or renovated under the Residential Communities Initiative (RCI) will meet or exceed the sustainable design and development standards in accordance with their privatization agreement. All lodging constructed or renovated under the Army's Privatized Army Lodging (PAL) Program will

meet or exceed the sustainable design and development standards as established in the PAL lease.

c. For purposes of this policy, "construction activity" is any activity that designs, builds, assembles, modernizes, or repairs infrastructure including vertical (occupied and non-occupied buildings), horizontal (e.g., roads, parking lots, aprons), and utility systems (e.g., distribution systems and supporting infrastructure).

d. Exceptions to this policy may be considered if the Garrison Commander or equivalent determines that compliance with the policy would adversely affect mission performance, security or Antiterrorism/Force Protection (AT/FP) requirements, health, safety, or welfare. Requests for exception must be submitted through the chain of command to the Deputy Assistant Secretary of the Army for Installations, Housing, and Partnerships (DASA(IHP)) and shall include the reference(s) to the specific conflict, proposed mitigation measures to follow the intent of this policy, and justification for the requested exception. Any approved exception shall only apply to the specific policy requirement(s) in conflict for a singular construction activity.

4. Objectives. The goal of this policy is to provide productive, safe, and healthy facilities and installations that enhance mission effectiveness, reduce the Army's environmental footprint, and achieve levels of energy independence that enhance continuity of mission-essential operations. Guided by federal mandates, the Army will plan, design, build, and operate facilities to achieve the highest-performing sustainable design that is life-cycle cost-effective within the program amount. The feasibility to include renewable energy shall be investigated and documented for each project, starting with installation master planning and project planning and development activities. Construction activities will be planned, programmed, budgeted, designed, built, and operated to comply with EPAct 2005, EISA 2007, EO 13423, and EO 13514 (references 1.b through 1.e), and conform to the guiding principles in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (reference 1.f), as detailed in Section 5 of this policy.

5. Policy. All projects subject to this policy shall achieve the following requirements:

a. <u>Planning, Design, and Construction Requirements</u>. All projects will be planned, programmed, budgeted, designed, built, and reported to meet the requirements of UFC 1-200-02 (reference 1.g) with the following additional requirements. If the requirements as defined below conflict with UFC 1-200-02, then the requirements listed below shall take precedence:

i. Siting & Site Development.

(a). Siting. When siting new construction, preference shall be given to brownfields and other previously-developed lands, proximity to existing supporting infrastructure (e.g., utilities), and connectivity to transportation modes/networks where feasible. Compact development, in-fill, mixed use, and multi-story strategies shall be

applied to achieve optimal densities, in accordance with UFC 2-100-01 (reference 1.h) and UFC 1-200-2. Projects will consider the environmental and building performance impacts to thermal, daylight, air quality, and water calculations due to current and future adjacent structures. New construction shall not be sited in flood hazard areas or areas subject to sea level rise and storm surges, unless the purpose of the project requires such a location (e.g., flood control, navigation, shipping or pier operations). Sea level rise planning guidance is provided in reference 1.i.

(b). Mitigation of Heat Island Effect. For site hardscape and walls, meet the requirements in UFC 1-200-02. For roofs, select and incorporate design strategies for new construction and roof replacements that consider the climatic region and the thermal loads of the building by following the requirements of ASHRAE 189.1-2011 (reference 1.j) Section 5.3.2.3.

(c). Reduction of Light Pollution. To minimize light pollution from exterior lighting systems, all projects will adhere to ASHRAE 90.1-2010 Section 9 (reference 1.k) and ASHRAE 189.1-2011 Section 5.3.3, except as required by Army security policy.

(d). Storm Water Management. Site development for all projects of 5,000 ft^2 or greater shall retain the pre-development site hydrology in accordance with EISA 2007 Section 438, UFC 3-210-10 (reference 1.l), and reference 1.m. These projects must be planned, designed, and constructed to manage any increase in storm water runoff (i.e., the difference between pre- and post-project runoff) within the limit of disturbance. Projects will maximize the use of existing site topography including soils, flora, slope, and hydrology to minimize site disturbance including clearing and soil grubbing activities. Documentation of the project's compliance with EISA 438 will be maintained in the project file and will be reported via the chain of command for annual SSPP reporting. Storm water management guidance and tools are available in reference 1.m. and at:
http://www.usace.army.mil/Missions/Sustainability/HydrologyandLowImpactDevelopment.aspx.

(e). Invasive Plants. In accordance with ASHRAE 189.1-2011 Section 5.3.4, invasive plants will not be planted on the project site. Any existing invasive plants will be removed from the project site and destroyed or disposed of in an authorized landfill.

ii. Energy Performance.

(a) Energy Efficiency. Energy efficiency is a mission objective to the Army and will compete equally with other mission requirements defined by the project. Project scope deviation to energy requirements or other reasons shall follow the normal approval processes. All projects will meet, at a minimum, the requirements of UFC 1-200-02 and achieve the highest energy efficiency that is life-cycle cost-effective within the program amount. In addition, plug and process loads shall be included as part of the energy calculations.

(b). Renewable Energy. Renewable energy systems shall be designed to function absent of normal utility power and have the ability to divert power to mission critical assets as appropriate. All projects shall follow UFC 1-200-02 for renewable energy. For water heating, all projects will meet the EISA Section 523 requirement to provide a minimum of 30% of the facility's hot water demand by solar water heating when life-cycle cost effective, and shall achieve higher percentages to the maximum amount that is life-cycle cost-effective (reference 1.n).

(c). Exterior Lighting. All project designs for exterior lighting must consider use of highly-efficient lighting technologies and their associated control systems, in accordance with references 1.k and 1.o.

iii. Water Use. The overall goal is to identify and implement water reuse strategies to use water efficiently (reference 1.p). Projects will also evaluate “purple pipe” strategies to reclaim and/or reuse water, and implement those strategies where life-cycle cost-effective.

(a). Indoor Water Use. All projects will meet the federal requirements for water efficiency per UFC 1-200-02 Section 2-5.1.

(b). Outdoor Water Use. All projects will use water-efficient landscape and irrigation strategies that achieve a minimum 50% water reduction (in UFC 1-200-02 Sections 2-5.2 and 4-5.2), and will comply with ASHRAE 189.1-2011 Sections 6.3.1 and either Section 6.4.1 (prescriptive option) or Section 6.5.1 (performance option). In accordance with reference 1.p, non-potable water should be used in place of outdoor potable water whenever possible. To further reduce outdoor water use, native plant species and dry-scape architectural alternatives will also be considered.

iv. Metering, Monitoring, and Sub-Monitoring. All new construction and major renovations require building-level monitoring accomplished by smart meters installed in accordance with UFC 1-200-02 and Army metering policy to capture consumed utilities (e.g., electricity, natural gas, water, steam). Additionally, major subsystems in all new construction and major renovations should be sub-monitored based on levels identified in ASHRAE 189.1-2011 Section 6.3.3 for Water Consumption and Section 7.3.3 for Energy Consumption by major subsystems where practical. All metering and monitoring data will report electronically to the Army’s Enterprise Meter Data Management System (MDMS). If sub-monitoring is determined not to be practical at the time of design, major subsystems for energy and water shall be designed to allow for future installation of sub-monitoring.

v. Commissioning & Plans for Operation.

(a). Total Building Commissioning. Facility construction projects will fulfill the commissioning requirements prescribed in UFC 1-200-02. Construction projects will use Total Building Commissioning practices to develop the essential documentation, testing, training, and validation required to assure that the facility meets the design intent and post construction operational needs, as documented in the project Owner

Project Requirements (OPR). The Total Building Commissioning process shall focus upon documenting and verifying through the total life of the project that the facility is planned, designed, installed, tested, operated, and maintained to meet the OPR. During the development of the programming document (planning phase), the appropriate Total Building Commissioning level of rigor will be determined based on the size and complexity of the project. The estimated cost for the services of a qualified and experienced Commissioning Authority (CxA) will be budgeted for in the programming document and the cost will be validated prior to the finalization of the Parametric Design. The use of contracted services or Government personnel as a qualified and experienced CxA should be determined at the start of the design phase. The CxA shall be independent of the team that executes design and construction.

(b). Plans for Operations. Projects will follow the requirements in ASHRAE 189.1-2011 Section 10.3.2.

vi. Construction Materials, Finishes, and Furnishings. To comply with federal sustainable procurement requirements, all projects will adhere to UFC 1-200-2 Sections 2-6.4 (Low-Emitting Materials), 2-7.1 (Environmentally Preferable Products), 2-7.2 (Recycled Content), 2-7.3 (Biologically-Based Products), and 2-7.5 (Ozone Depleting Substances). Projects will also comply with applicable requirements for the purchase of water efficient (e.g., WaterSense), Energy Star or FEMP-designated (or an “A” or better European Union Energy Label, EU energy efficiency class), and Electronic Product Environmental Assessment Tool (EPEAT) designated products. Contract language will specify these purchasing requirements and contracting officers will report these clauses in the Federal Procurement Data System. In addition, project materials will comply with the requirements in ASHRAE 189.1-2011 Section 9.3.2 (Extracting, Harvesting, and/or Manufacturing).

vii. Waste & Recyclables Management.

(a). Construction Waste Management. The DoD Strategic Sustainability Performance Plan (SSPP) (reference 1.q) requires that at least 60% of construction and demolition debris be diverted from the waste stream by FY2015. However, it is the Army’s intent to manage waste with the goal of Net Zero waste disposal in landfills. Therefore, projects that involve the removal of existing buildings or structures will evaluate the feasibility of deconstruction and salvage rather than conventional demolition, and will implement deconstruction wherever markets or on-site reuse opportunities exist or are anticipated.

(b). Storage and Collection of Occupants’ Recyclables and Reusable Goods. The DoD SSPP requires that at least 50% of non-hazardous solid waste be diverted from the waste stream by FY2015. To support this SSPP goal and the Army’s Net Zero waste goal, projects will adhere to ASHRAE 189.1-2011 Section 9.3.4 and will provide conveniently located and appropriately sized space for reuse and recycling for building occupants.

viii. Acoustical Control. In accordance with ASHRAE 189.1-2011 Section 8.3.3, buildings shall be designed to address the control of exterior and interior background noise. Projects will also comply with the noise-related land use compatibility requirements in AR 200-1, Chapter 14 (reference 1.r). Projects in the vicinity of airfields will comply with DoDI 4165.57, Air Installations Compatible Use Zones (AICUZ) (reference 1.s) and other applicable airfield regulations.

ix. New and Underutilized Technologies. Building technologies for energy and water are improving at a rapid rate. All project designs must consider the use of new and underutilized technologies and their associated systems where life-cycle cost effective, regardless of the design agency (e.g., U.S. Army Corps of Engineers, in-house, energy savings performance contracts, utility energy service contracts). Resources to assist in the analysis of new and underutilized technologies are provided in Enclosure 1.

b. Validation Requirements. The Army standard for high-performance sustainable building/project rating and certification is the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. Other rating systems may be approved if equivalency is demonstrated. Waiver requests for use of a demonstrated equivalent rating system may be submitted per paragraph 3.c.

i. New Construction/Major Renovation. All new construction vertical projects and comprehensive building renovations meeting the Minimum Program Requirements (MPRs), or having minimum characteristics set by the USGBC, except Family Housing, will incorporate sustainable design principles into site selection, design and construction. For purposes of this policy, comprehensive building renovations are defined as changes to a building's envelope, infrastructure, equipment, and systems that provide significant opportunities for substantial improvement in the sustainable design elements of the building, including energy and water efficiency. All such construction will be certified at the LEED for New Construction (LEED-NC) Silver level. The definitions and guidance on the MPRs are provided in a document titled Supplemental Guidance, available on the USGBC website (http://www.usgbc.org/resources/leed-2009-mpr-supplemental-guidance-revision-2-september-2011). Project teams will follow the rating system selection guidance (http://www.usgbc.org/leed/certification/choose) in deciding which LEED rating system is best for a given project. Vertical construction not meeting MPR thresholds will be designed and built to incorporate the applicable LEED sustainable design features available at the site, but will not require GBCI certification.

ii. Family Housing. Effective immediately, all future design starts of Army Family Housing (AFH) new or replacement construction will be certified at the LEED for Homes (LEED-H) Silver level with at least 15 LEED energy points from the GBCI. AFH repair and renovation of existing residential housing will make the best use of sustainability and energy savings technologies, but are exempt from the certification requirements in this policy.

iii. Privatized Housing and Lodging. Upon execution of new privatization agreements or approval of out-year development activities beyond the initial development period under existing privatization agreements, new construction and major renovations will be certifiable at the Silver level of the applicable LEED rating system (e.g., LEED-NC, LEED-H, LEED-Neighborhood Development). Minor renovation of existing facilities will incorporate LEED sustainable design features in accordance with their privatization agreement.

iv. Medical Facilities. New construction and major renovations of DoDM centers, hospitals, ambulatory care centers, and in-patient/out-patient clinic areas where medical treatment is provided will be certified at the LEED for Healthcare Silver level. Medical facilities that fall outside these facility types will be certified at the Silver level of the appropriate LEED rating system (e.g., LEED-NC, LEED for Commercial Interiors).

v. Minor Renovations. For all other building renovation projects, this policy only applies to the portions of the building or building systems that are being renovated. These renovations shall incorporate LEED Silver level features that are life-cycle cost effective within the program amount, and documentation shall be retained for at least five years to facilitate future building certification as a high performance sustainable building.

vi. All horizontal construction projects, and other vertical construction not meeting the MPRs (e.g., communication huts, storage facilities, recreation fields) and utility systems, and any interest in land, must achieve the applicable LEED credit for sites, water, energy, materials and resources and meet the requirements in UFC 2-100-01 and UFC 3-210-10. While LEED certification is not required, documentation on which credits were achieved will be maintained by the installation.

6. The Army's commitment to sustainable design and development extends beyond the construction/renovation phase. Performance monitoring, re-commissioning and analysis will be conducted throughout the life-cycle of the facility/infrastructure to ensure that performance problems are identified and corrected in a timely manner. It is the Army's intent to move toward certification of our existing buildings using LEED for Existing Buildings (LEED-EBOM). When undertaking maintenance actions, improving operational processes, or procuring new service contracts, installations are expected to do so in a manner that moves the installation closer to this goal. Operation and maintenance procedures, including janitorial services, will be adjusted as necessary to meet the DoD and Army sustainability policies and objectives. Training for building users and operators is essential to ensure proper building systems operation and maintenance, use of sustainable cleaning products, and overall occupant comfort and security.

7. Summary. This policy builds upon the Army's long-standing energy efficiency and sustainability practices. The Army must continue to develop and implement sustainability strategies for our facilities, infrastructure, and installations to provide greater energy and water security, increase operating flexibility, and maintain an effective readiness posture.

8. My points of contact for this policy are Jae Kim (jae.j.kim2.civ@mail.mil or 703-693-9919) and Wanda Johnsen (wanda.j.johnsen.civ@mail.mil or 703-697-5433).

KATHERINE HAMMACK

Enclosure

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New and Underutilized Technology Resources

1. DOE EERE FEMP Technology Deployment Program Technology Matrix: http://www.eere.energy.gov/femp/technologies/newtechnologies_matrix.html

   The technology matrix is an effective tool to assist Federal agencies to identify newer and underused energy savings technologies to help meet energy reduction goals, to save research time, and provide better direction in making ECM decisions.

2. DOE EERE FEMP Covered Product Categories: http://www.eere.energy.gov/femp/technologies/eep_purchasingspecs.html

   The summary of covered product categories was developed to help Federal purchases meet Federal requirements for high efficiency. Each product category is either covered by FEMP-designated or ENERGY STAR®. Some office equipment and electronics are also covered by EPEAT or low standby power requirements.

3. DOE EERE FEMP Energy and Cost Calculators for Energy Efficient Products

   The energy and cost calculators were developed as a resource to allow Federal agencies to enter their own input values (e.g., utility rates, hours of use) to estimate energy and cost savings for energy-efficient products. Some are Web-based tools; others are Excel spreadsheets provided by ENERGY STAR® for download.

4. DOE EERE FEMP Water Efficiency website: http://www1.eere.energy.gov/femp/program/waterefficiency.html

   The water efficiency website provides an overview of Federal water efficiency requirements as well as guidance surrounding Federal water management.

5. DOE EERE FEMP Renewable Energy Technology website: https://www1.eere.energy.gov/femp/technologies/renewable_technologies.html

   The Renewable Energy Resource and Technology website provides resources to help Federal agencies meet their renewable energy goals.

6. EPA ENERGY STAR® Program: http://www.energystar.gov

   EPA Energy Star provides information about their qualified products.

7. EPA WaterSense: http://www.epa.gov/watersense/

   The EPA WaterSense website provides consumers with easy ways to save water, as both a label for products and an information resource to help use water more efficiently.

8. DOE Building Technology Office Commercial Better Building Alliances (BBA) technology specification website: http://www1.eere.energy.gov/buildings/commercial/bba_tech_specs.html

   The DOE Building Technology Office website provides specifications that can be customized and used to obtain quotes for high-efficiency products and services. Collective BBA support of these product and performance specifications demonstrates a market need to manufacturers and leads to greater product availability, higher quality, and more competitive pricing.

9. Whole Building Design Guide: www.wbdg.org

   The Whole Building Design Guide website is the gateway to up-to-date information on integrated whole building design techniques and technologies.