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ASSISTANT SECRETARY OF THE ARMY
INSTALLATIONS, ENERGY AND ENVIRONMENT
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MEMORANDUM FOR DISTRIBUTION

SUBJECT: Department of the Army Policy Guidance on Resilient Buildings

1. References. See Enclosure 1.

2. Purpose. The purpose of this policy guidance is to innovate the Army's planning, design, and construction processes to ensure resilient buildings across all Army components to promote increased readiness, force generation, and Quality of Life (QOL) at all installations.

3. Objectives. The primary objective of this policy guidance is to establish and clarify criteria for project planning and design processes to create resilient buildings on Army installations. A resilient building portfolio will maximize power projection and training on installations under all conditions; improve QOL for Soldiers, families, and Army civilians; and protect health and the environment. Innovative planning and design processes should also result in buildings with decreased long-term operating costs without significantly increasing upfront project costs.

4. Applicability. This policy guidance applies to projects of all work types –facilities sustainment, restoration, and modernization (FSRM), and construction, as described in Reference (v) – regardless of funding source or authority, including operation and maintenance, military construction, family housing operations and construction, working capital, and non-appropriated funds (NAF). Applicability is predominantly based on real property ownership and congressional reporting thresholds, as described below.

a. All building-related projects on Army installations, readiness and reserve centers, and depots, including government owned/contractor operated installations. This includes, but is not limited to, Army Reserve, Army National Guard, Organic Industrial Base (OIB) facilities, NAF property on Army installations, and donated/gifted buildings on Army installations.

b. All Military Department and defense-wide agency projects on installations where the Army is the lead Service. All Army-funded projects where Army resides as a tenant on the installation of another Service, regardless of location, unless otherwise stated in the site-specific joint base memorandum of understanding or other documentation governing the Army's presence. Commanders of installations where Army is the lead services shall ensure communication of this policy guidance to all tenants.

c. Overseas construction activities at enduring Army locations except where there are direct conflicts with host nation agreements. In those cases, every effort should be made to comply with the criteria established in this policy guidance.

d. All unspecified minor military construction (UMMC) and FSRM projects where projected costs are equal or greater to the cost thresholds for notification to Congress set by 10 U.S.C. 2805 and 10 U.S.C. 2811.

5. Effective Dates. This policy guidance is effective immediately for all projects as described below.

a. All construction projects, other than FSRM, starting in FY2027 shall comply with this guidance. For all FY2025 and FY2026 projects, project proponents shall evaluate reasonable changes to planning and design to maximize resilience and energy and water efficiencies in accordance with the resilient building criteria in Section 11, unless such changes result in significant cost increases or the project acquisition timeline is delayed beyond established completion dates.

b. All FSRM projects where design or design acquisition has not commenced.

6. Definitions. The following definitions apply for the following terms used in this policy guidance:

a. Resilient building. A building that (1) maximizes the ability of the military to withstand and recover from a potentially disruptive event that may adversely affect mission assurance and mission-essential functions, including extreme weather (as defined by 10 U.S.C. 101(a)(20)) or a disruption to energy or water supplies; (2) has minimal energy and water demand; and (3) has an indoor environment optimized to promote human safety, physical and psychological health, and productivity.

b. Project proponent. The individual or organization responsible for completing the project milestone in the section where the term appears. For example, in Section 5, the project proponent responsible for evaluating changes to a project in design may be a district of the U.S. Army Corps of Engineers (USACE), when the district is the design and construction agent.

c. Whole Building Life Cycle Cost. The total cost of a building when consideration is given to the cradle-to-grave costs associated with upfront construction; lifetime building sustainment, maintenance, and operations (including energy and water use); and building disposal.

d. Deep Energy Retrofit (DER). A building renovation that leverages whole building integrative design approaches to reduce a building's annual energy use intensity by at least 40% from its pre-renovation FY 2019 energy use baseline.

7. Whole Building Life Cycle Cost Analysis. To achieve the criteria of this policy guidance, a Whole Building Life Cycle Cost Analysis (WB LCCA) will be conducted as part of the development of a project's 35% design or equivalent milestone to select the most Life Cycle Cost Effective (LCCE) integrated facility configuration that meets the criteria outlined in this policy guidance and legal mandates. For new military construction, all criteria in Section 11 will be evaluated for inclusion in the final project by using a WB LCCA. This includes major military construction and UMMC regardless of the funding source. For FSRM projects, all criteria in Sections 9, 10 and 11 will be evaluated for inclusion in the final project by using a WB LCCA.

a. Project proponents will evaluate a minimum of three alternatives reflecting substantially different integrated design configurations for the WB LCCAs.

b. A cost-effective WB LCCA will be considered as also validating each individual system or component (i.e., individual systems or components need not be cost effective on their own, provided they contribute to the overall cost effectiveness of the integrated facility). The goal is to select the optimal combination of interdependent building systems (e.g., envelope; heating, ventilation, and air conditioning (HVAC); hot water; lighting; wall and floor thermal mass capacity; etc.) to maximize building performance and meet mission objectives. Chapter 7 of Reference (cc) provides guidance on selecting the optimal combination of interdependent building systems.

c. Project proponents will perform WB LCCAs in accordance with References (l), (cc), (k), and (j). Record all documentation demonstrating the consideration; analysis; incorporation; cost estimates; and integration of components, systems, or techniques addressing the criteria in this policy guidance.

8. Energy Savings. All new construction designs shall target the energy efficiencies described below. The WB LCCA will be used to determine the most cost-effective design to achieve these values.

a. For low-rise residential buildings, defined as buildings having three or fewer stories and designed for permanent residents, reduce modeled energy building consumption by a minimum of 30% from the International Energy Conservation Code baseline specified in 10 CFR 435.

b. For all other buildings, reduce modeled energy building consumption by a minimum of 30% below the ASHRAE 90.1 baseline specified in 10 CFR 433.

9. Deep Energy Retrofit (DER).

a. Per Reference (n), federal agencies must implement DERs for at least 30% of covered facilities by 2030. Per Reference (g) an installation's "covered facilities" are defined, for the purpose of this policy guidance, as those facilities that, in aggregate, "constitute at least 75%" of the installation's facility-driven energy use. All restoration

and modernization projects encompassed in this policy guidance shall complete a DER assessment and incorporate DER solutions that are LCCE.

10. Building Systems Electrification Standard. In accordance with References (r) and (bb), the use of fossil fuel combustion systems and equipment is generally prohibited for building operations in new military construction at all worldwide Army installations, including Army Reserve and federal Army National Guard facilities and installations. This policy guidance does not modify those requirements. This building systems electrification standard also applies to any project using the repair authority pursuant to 10 U.S.C. 2811.

a. For all projects that are not new construction projects, any large capital investment in an existing building that involves replacement of installed energy-consuming equipment (such as heating and cooling systems) shall employ energy efficient designs, systems, equipment, and controls, with priority consideration of solutions that meet the electrification standard in Reference (r) and (bb) where such solutions do not result in costs or mission risks that jeopardize the execution of a project.

b. While DoD policy allows the continued use of fossil fuel combustion systems and equipment for unique mission requirements, including for manufacturing and industrial loads and emergency operations, the Army shall prioritize all-electric technologies to replace legacy systems whenever such technology is available, cost effective, and not negatively impactful to mission accomplishment.

11. Resilient Building Criteria.

a. Incorporate integrated design and passive design elements into the building project to reduce energy and water use intensity. Passive design elements provide energy and water saving benefits to buildings by taking advantage of natural principles without using energy or increasing water consumption. In the aggregate, these design elements are intended to reduce the total electricity demand necessary to support facility operations, including the backup power needed for mission assurance and/or mission essential functions.

(1) Building designs shall incorporate building form and orientation strategies and consider passive heating and cooling design techniques and systems in appropriate geographies to minimize, or eliminate, the use of mechanical systems, avoid external and internal thermal loss, and maintain building functions during prolonged outages.

(2) Building designs shall consider thermal storage and passive daylight systems to reduce energy use and improve QOL.

b. Integrate carbon-free energy (CFE) generation and storage. Designs shall integrate CFE generation and storage to support critical operational needs and reduce installation grid demand. CFE generation and storage can be incorporated at the

building level (e.g., rooftop solar) or as part of an integrated installation or campus microgrid that supports the resilience and masterplan of the installation.

c. Use lower embodied carbon emissions building materials as the primary construction material when available and validated to meet engineering specifications. The Army is planning and conducting several pilot projects using lower embodied emissions building materials that will continue to inform future feasibility analysis for use across the military construction program. The use of lower embodied emissions building materials as the primary construction material will depend on several factors, such as regional availability, costs, and impacts on construction timeliness.

(1) In accordance with implementation of Reference (m) and based on recognition of industry best practices, project proponents shall use product-specific type III Environmental Product Declarations as the primary data source for evaluating and selecting materials with lower embodied emissions.

(2) Project proponents must validate that designs consider primary building materials with lower embodied emissions, for example, low Global Warming Potential concrete, recycled steel, or mass timber, are considered in all facility designs. Documentation of the primary material considerations shall be provided in the 35% design submittal.

d. Incorporate natural infrastructure into the building design where appropriate to promote energy and water efficiency. The use of green roofing and vertical plant wall systems can improve indoor air quality, moderate temperatures, and cut life cycle maintenance costs by enhancing the energy efficiency of climate control systems. In accordance with Reference (s) and Reference (i), stormwater management features, such as raingardens and other bioretention structures, shall be incorporated into or nearby the project site for water collection, storage, and reuse, reducing the water use intensity, recharging the aquifer, and improving water resilience in drought-stressed environments. Building designs should adopt nature-based solutions unless alternatives are demonstrated to be more beneficial, when the full range of benefits are considered, or nature-based solutions are not technically suitable for project goals.

12. Objective Enablers.

a. Leadership in Energy and Environmental Design (LEED). The Army will continue to expand its LEED-certified footprint by requiring LEED v4 silver-level certification as a minimum standard for new construction and major renovations, in accordance with federal statute and DoD policy. This policy guidance for resilient buildings shall serve to complement, not supersede, requirements related to achieving or reporting LEED standards. Project proponents shall continue to use LEED to advance the objectives of this policy guidance.

b. Integrated Master Planning. In accordance with References (d), (t), and (s), project proponents shall synchronize the implementation of this policy guidance into the integrated master planning process for an installation.

(1) As required by References (a), (m), (aa), (s), and (q), project proponents shall consider features that enhance energy, water, and climate resilience of the installation, as identified in the Installation Energy and Water Plan and Installation Climate Resilience Plan annexes of an installation master plan to mitigate potential risks to commodity supplies, distribution, and infrastructure that could impact mission assurance.

(2) If all-electric technologies in building operations increase electricity demand and output beyond the load capacity supported by existing switchgear, transformer, substation, or other electrical utility transmission infrastructure, project planning and design must be coordinated with installation and community master planners, energy managers, and privatized utility system owners and housing providers, where applicable.

c. Incorporating Resilience Standards in Project Planning and Conceptualization (35%) and DD 1391 Development. In accordance with Reference (u), project proponents shall:

(1) Perform planning charrettes during DD 1391 development, design charrettes at the start of Concept Design, and document resiliency measures in Basis of Design as required in AR 420-1.

(2) Ensure that applicable elements of this policy guidance are documented as functional requirements and criteria in the planning charrette and DD 1391. The planning charette shall include any conceptual analysis needed to evaluate optimal building massing and orientation, and other resilient building criteria impacted by siting decisions. The DD1391 approving authority will certify that the components of this policy guidance are considered. This includes the criteria in Sections 8, 10, & 11.

d. Training. The Army should maintain a workforce that can successfully implement the objectives in this policy guidance. The Army DCS, G-9 will provide guidance to landholding commands to update any applicable instruction and certification programs for installation public works personnel, such as engineers, master planners, energy and water managers, environmental managers, financial management specialists, and installation senior leadership.

e. Building Automation Systems. All-electric technologies should use digital controls to support energy demand response programs and energy demand management capabilities. Project proponents will design facilities in accordance with References (y), and (z) to ensure standardization of building automation systems (BAS) across all facilities at the installation level.

13. Exceptions to Policy Guidance. Exceptions will be granted by the ASA(IE&E) or designee.

a. Exceptions to this policy guidance shall be submitted when a project proponent can demonstrate that performing a WB LCCA as described in this policy guidance and incorporating the requirements into project planning is cost prohibitive or puts the project execution in jeopardy. The project proponent must submit an exception to policy guidance in writing to the ASA(IE&E) for review and approval. Exceptions to policy guidance will be made before 35% design completion (or similar stage when applicable) and must document the following:

(1) Recommendation for exception from the organization with the requirement for the project.

(2) An estimate of the impacts that the policy guidance may have on design cost that may necessitate an exception.

(3) An explanation of if and why the planning and design budget was insufficient to account for the costs of performing a WB LCCA as described in this policy guidance.

(4) An assessment of how an exception, if granted, may impact the military installation resilience as defined by 10 U.S.C. 101(e)(8), including with respect to climate risks identified as part of an Installation Climate Resilience Plan required by 10 U.S.C. 2864.

(5) Any other consideration with respect to how implementing this policy guidance for the project may negatively affect the mission.

b. The processes and objectives outlined in this policy guidance are intended to enable project proponents to plan and design Army buildings that will maximize power projection, training, and QOL on installations. The execution of this policy guidance may result in project designs with increased costs, although this should not be expected in every case. Upfront cost increases must be considered against life cycle costs, building resilience, energy and water security, and factors that support mission posture, safety, QOL, environmental protection, and other benefits to the Army and its stakeholders.

(1) If designs developed through this policy guidance result in increased costs or mission risks that jeopardize the execution of the project, project proponents may modify the degree to which the criteria and energy savings in this policy guidance are incorporated into the final design, provided all requirements of applicable laws or other policies are followed.

(2) Modifying the extent to which the resilient building criteria and energy savings in Sections 8 and 11 are incorporated into the final project design to ensure project

execution does not constitute the need for an official exception to policy. The project proponent is still responsible for documenting deviations from the objectives and energy savings in this policy guidance, and ODCS, G-9 or OASA (IE&E) may request such documentation in writing.

14. Implementation. The ASA (IE&E) and DCS, G-9 shall serve as co-chairs of the Army Resilient Building Oversight Board (ARBOB). Standing members will include the Commanding General of Army Materiel Command; the Commanding General of the USACE; the Director of the Army National Guard; and the Chief of Army Reserve. The ARBOB shall be responsible for implementation and oversight of this policy guidance.

a. The ARBOB shall meet not later than 90 days after the adoption of this policy guidance, and quarterly thereafter.

b. The ARBOB shall develop a governance structure and plan of actions and milestones to implement this policy guidance within 90 days.

c. The ARBOB shall review regular reporting, including exceptions to policy requests, to measure progress and monitor for impediments to implementing this policy guidance.

d. The ARBOB shall review the WB LCCA and trade off analysis processes by analyzing the cost estimates and final costs associated with applying Sections 9 and 10 to projects.

15. The points of contact for this effort is the DASA(IH&P) at 703-697-8161 and the DASA(E&S) at 703-256-4710.

AUTHORITY LINE:

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4 Encls.
1. Tab A - References
2. Tab B - DoD Memorandum, Electrification of Standard Building Operations. 28 August 2023
3. Tab C - DA Policy on Building Automation Systems, 28 October 2020
4. Tab D - DOA Memorandum, Army Electrification Guidance for Military Construction (MILCON) and Sustainment, Restoration and Modernization (SRM) Projects, 05 February 2024

Tab A - References

a. “Military Installation Resilience” 10 USC 101 (e)(8).
b. “Repair of facilities” 10 USC 2811.
c. “Consideration of energy security and energy resilience in life-cycle cost for military construction” 10 USC 2816.
d. “Master plans for major military installations” 10 USC 2864.
e. “Energy policy of the Department of Defense” 10 USC 2911.
f. “Facilities: use of renewable forms of energy and energy efficient products” 10 USC 2915.
g. “Energy and water management requirements” 42 USC 8253.
h. “Federal purchase requirement” 42 USC 15852.
i. “Storm water runoff requirements for federal development projects” 42 USC 17094
j. “Energy Efficiency Standards for New Federal Commercial and Multi-Family High-Rise Residential Buildings” 10 CFR 433.
k. “Energy Efficiency Standards for the Design and Construction of New Federal Low-Rise Residential Buildings” 10 CFR 435.
l. “Methodology and Procedures for Life Cycle Cost Analyses" 10 CFR Part 436, Subpart A.
m. Executive Order 14057, (Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability).
n. Implementing Instructions for Executive Order 14057, August 2022.
o. Department of Defense Instruction 4165.70, *Real Property Management.*
p. Department of Defense Instruction 4170.11, *Installation Energy Management.*
q. Department of Defense Memorandum “Metrics and Standards for Energy Resilience at Military Installations”, 20 May 2021.
r. Department of Defense Memorandum, “Electrification of Standard Building Operations,” 28 August 2023. (See Encl. 2)
s. Unified Facilities Criteria 2-100-01, Installation Master Planning.
t. Army Regulation (AR) 210-20, *Real Property Master Planning for Army Installations.*
u. Army Regulation (AR) 420-1, *Facilities Management.*
v. Army Pamphlet 420-11, *Project Definition and Work Classification.*
w. Army Directive 2020-03 (Installation Energy and Water Resilience Policy).
x. Army Directive 2020-11 (Roles and Responsibilities for Military Installation Operations).
y. Army Climate Strategy, Office of the Assistant Secretary of the Army for Installations, Energy and Environment, February 2022.
z. Department of the Army Memo, Army Policy on Building Automation Systems, 28 October 2020. (See Encl. 3)
aa. Department of the Army Memorandum, “Guidance for Installation Climate Resilience Plans (ICRPs),” 11 November 2022.
bb. Department of the Army Memorandum, Army Electrification Guidance for Military Construction (MILCON) and Sustainment, Restoration and Modernization (SRM) Projects, 05 February 2024 (See Encl. 4)
cc. “Life-Cycle Costing Manual for the Federal Energy Management Program,” NIST Handbook 135.