

OSD/Army/USACE Building Electrification Policies and USACE Mandatory Consideration of Mass Timber

17 October 2023

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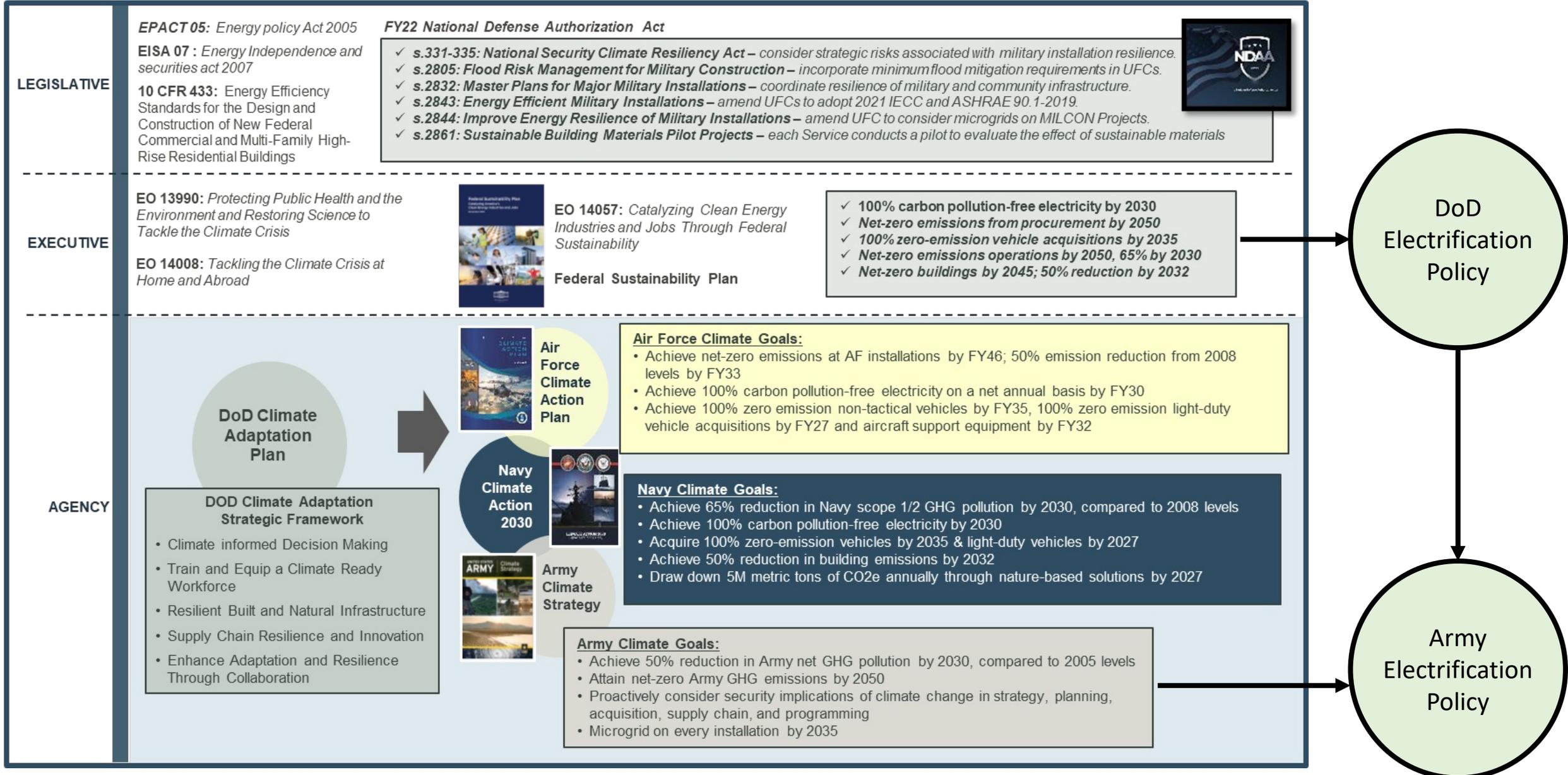
Chief Architect

US Army Corps of Engineers - Headquarters



U.S. ARMY

★ Alignment of Law, Executive Orders, and Policy



OSD Building Electrification Policy



DoD Policy Summary:

Effective: 29 MAR 2023

Applies to:

- Worldwide facilities, except where prohibited by a host nation agreement
- New military construction up to 35% design
- Renovations and repairs that impact space conditioning, water heating, cooking, and laundry equipment.

Does not apply to:

- Emergency generators
- Unique agency research/manufacturing/industrial/process loads where technology is not practicable

What must be done:

- Eliminate fuel consuming equipment (e.g. furnaces, boilers, range cooktops, dryers, etc.). Use electric equipment instead
- New MILCON up to 15% design must comply in full; new MILCON between 15% and 35% must include infrastructure for future electrification (e.g. conduit, electrical panels, wiring)
- Existing building repair, replacement, and major renovations must replace in-scope fuel-based equipment with electric equipment

Exceptions: Climate zones where all-electric technologies are not practicable, if approved by the ASA IE&E



ACQUISITION
AND SUSTAINMENT

THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
CHIEF OF THE NATIONAL GUARD BUREAU
COMMANDERS OF THE COMBATANT COMMANDS
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Electrification of Standard Building Operations

In accordance with Executive Order (EO) 14057 and the 2022 National Defense Strategy (NDS), the Department of Defense (DoD) will implement steps to reduce its energy consumption and ensure energy resilience and reliability. Effective immediately, DoD Components must incorporate into building design, construction, repair, and operations, requirements that maximize the use of all-electric technologies to leverage the Department's growing investment in microgrid technology to support mission assurance.

- For new military construction and major renovation projects that has not yet reached schematic design phase (up to 15 percent design), DoD Components will include in building designs the use of all-electric technologies for system components, including for space conditioning, water heating, cooking, and laundry, where market ready technologies exist. Where a project design has progressed past schematic design, but has not yet reached 35 percent design, DoD Components will include in designs the necessary infrastructure to enable future electrification of building systems for space conditioning, water heating, cooking, and laundry. This includes, but is not limited to, increasing sizing of conduit runs, utility chases, and electrical panels and wiring to support future building electrification.
- For existing buildings, DoD Components will implement the use of all-electric technologies where market ready technologies exist, for building system components, including space conditioning, water heating, cooking, and laundry systems, upon a system's expected end of useful life, unexpected system failure, or when buildings will undergo major renovation where various system components will be replaced as part of facility restoration and modernization.
- Components are encouraged to electrify district plants as soon as practical. For buildings connected to a DoD-owned, non-electric powered district plant utility, DoD Components may continue to use the plant through the end of its useful life or until replacement becomes cost effective or advantageous to the Government. Components will not refit existing non-electric powered district plants to extend their useful life or increase their capacity. All new district plants are subject to the same electrification requirements stated above for military

HQDA Building Electrification Policy



Army Policy Summary:

Effective: 18 MAY 2023

Applies to:

- [Same as DoD policy for Worldwide facilities.]
- [Same as DoD policy for new construction.]
- Renovation and modernization *projects that require Congressional notification* and are not yet under design that impact space conditioning, water heating, cooking, and laundry equipment.

Does not apply to: [Same as DoD Policy.]

What must be done: [Same, plus the following additions.]

- Provide carbon-free renewable energy generation and battery storage for critical operations.
- Provide three whole-building Life Cycle Cost Analyses on substantially differing integrated design configurations.
- Incorporate infrastructure requirements in project scopes where appropriate.
- The Chief of Engineers shall publish updated interim guidance and incorporate policy into Unified Facilities Criteria.

Exceptions: [Same.]



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

MAY 18 2023

DASA-IHP

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Army Electrification Guidance for Military Construction (MILCON) Projects

1. References.

- a. Executive Order 14057, "Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," 8 December 2021.
- b. Department of Defense Memorandum, "Electrification of Standard Building Operations," 29 March 2023.
- c. Department of Defense Instruction 4170.11, "Installation Energy Management," 31 August 2018.

2. In accordance with Reference (a), the Army is taking steps to reduce its energy consumption, reduce its dependence on carbon emitting energy sources, and ensure installation energy resilience and reliability. This electrification guidance will be codified as policy in an Army Directive and/or Army Regulation at a future date.

3. To implement Reference (b), effective immediately all MILCON projects that have completed schematic design (15% design) but have not completed concept design (35% design) shall incorporate the necessary infrastructure to enable future electrification, in accordance with the requirements of paragraph 4.

4. To implement Reference (b), effective immediately all MILCON projects that have not completed schematic design (15% design), and all renovation and modernization (R&M) projects requiring Congressional notification that are not yet under design shall comply with the following:

- a. Provide all-electric technologies in standard building operations for all systems and components, for example but not limited to space conditioning, water heating, cooking, and laundry, where market-ready technologies exist.

- b. Provide carbon-free renewable energy generation and battery storage designed and sized to support critical operational needs of buildings to reduce installation grid demand where market-ready technologies exist. Otherwise, provide adequate infrastructure capability for future implementation of these technologies. Energy



USACE ECB 2023-8: *Electrification, Decarbonization, And Executive Order (E.O.) 14057*

- Acts as interim guidance while Unified Facilities Criteria are updated.
- Clarifies definitions of design milestones and performance targets.
- Identifies exactly which MILCON projects must comply with Army and DoD Electrification Policy Requirements
- Impacts several UFC technical disciplines: Electrical, Mechanical, Sustainability, and others.
- Directs designers to resources such as the Army Sustainability Implementation Guide and UFC 1-200-02, “High Performance and Sustainable Buildings.”



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ENGINEERING AND CONSTRUCTION BULLETIN

No. 2023-08

Issuing Office: CECW-EC

Issued: 22 Jun 23

Expires: 22 Jun 25

SUBJECT: Electrification, Decarbonization, and Executive Order (E.O.) 14057.

CATEGORY: Directive and Policy.

1. References:

- [Implementing Instructions for Executive Order 14057 Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability](#), AUG 2022
- Electrification of Standard Building Operations DOD Memo, 29 MAR 2023
- Army Electrification Guidance for Military Construction (MILCON) Projects, 18 May 2023
- [Metrics and Standards for Energy Resilience at Military Installations](#), 20 May 2021

2. **Purpose.** This Engineering and Construction Bulletin (ECB) provides information on new Executive Order (E.O.) 14057, *Catalyzing Clean Energy Industries and Jobs through Federal Sustainability*.¹, the Electrification of Standard Building Operations DOD Memo, and Army Electrification Guidance for Military Construction (MILCON) Projects.

3. Applicability.

This ECB applies to all Army renovation and modernization projects that had not started design as of March 29, 2023, all Army MILCON projects FY26 and beyond, and all projects as detailed in Attachment A.

This policy does not apply to systems and equipment used for unique agency research, manufacturing, industrial and process loads for which all-electric technology is not practicable. Where such systems and equipment will use fossil-fuels on-site, these loads must be separately sub-metered or estimated. Such determinations should be documented in writing and included in the project records. Backup power generation for emergency use only is not subject to this requirement.

4. Background.

Army Electrification Guidance for Military Construction (MILCON) Projects memo states: *“Incorporate building design techniques, building features, and proven efficiency technologies to ensure energy and water conservation and resilience in accordance with Army sustainable design guidance.”*

¹ 86 Fed. Reg. 70935 (Dec. 13, 2021).

USACE ECB 2023-14: *Mandatory Consideration of Mass Timber in Army Military Construction (MILCON) and Civil Works Vertical Construction Projects*

- Requires **all Army MILCON and Civil Works vertical construction** projects to consider at least one option where mass timber is a substantial structural component, when comparing structural systems during early design.
- Must be documented via a Life Cycle Cost Analysis (LCCA). A description of all structural system options analyzed, results of the LCCA, and justifications detailing why a mass timber structural system was or was not selected for the project must be included in the project Design Analysis.
- Encourages LCA calculations to evaluate environmental impacts of different structural systems but does not require.
- Acknowledges that Impacts several UFC technical disciplines: Electrical, Mechanical, Sustainability, and others.
- Directs designers to resources such as the Unified Facility Guide Specifications (UFGS) for Cross Laminated Timber, Glue Laminated Timber, the American Wood Council (AWC) website and WoodWorks website.



US Army Corps
of Engineers

ENGINEERING AND CONSTRUCTION BULLETIN

No. 2023-14

Issuing Office: CECW-EC

Issued: 20 Sep 23

Expires: 20 Sep 25

SUBJECT: Mandatory Consideration of Mass Timber in Army Military Construction (MILCON) and Civil Works Vertical Construction Projects

CATEGORY: Directive and Policy

1. References.

- a. Unified Facilities Criteria 1-200-02, High Performing and Sustainable Buildings. <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-1-200-02>
- b. Department of Defense Report, Potential Usage in Military Construction of Cross-Laminated Timber (CLT) a next Generation Mass Timber Construction System, July 2021. https://www.denix.osd.mil/sustainability/denix-files/sites/20/2021/09/Report-to-Congress-Cross-laminated-Timber-25-Aug-21_508.pdf
- c. Protective Design Center Technical Report, Analysis Guidance for Cross-Laminated Timber Construction Exposed to Airblast Loading, September 2018.
- d. Mass Timber Buildings and the IBC, 2021 Edition.

2. Purpose.

This Engineering and Construction Bulletin (ECB) establishes policy requiring Project Delivery Teams (PDTs) to consider mass timber solutions when designing Army MILCON and Civil Works vertical construction projects. It also highlights US Army Corps of Engineers (USACE) and industry mass timber design resources.

3. Applicability.

This ECB applies to all Army MILCON and Civil Works vertical construction projects starting in the FY27 program year and beyond. It is highly recommended for all other MILCON projects and work for others within the Directorate of Military Programs.

4. Background.

a. Mass timber refers to a category of engineered wood products, consisting of multiple solid wood panels nailed or glued together for strength and flexibility. Examples of products in the mass timber family include but are not limited to cross-laminated timber (CLT), glue-laminated timber (Glulam or GLT), dowel-laminated timber (DLT), nail-laminated timber (NLT), and laminated veneer lumber (LVL).