

**Joint Base Lewis-McChord
Regulation 420-1**

Installation

**Facility Energy
Management
Program**

**Headquarters
Joint Base Lewis-McChord
Joint Base Lewis-McChord, WA
APRIL, 2020**

UNCLASSIFIED

SUMMARY of CHANGE

JBLM Reg 420-1 Facility Energy Management

Program This minor revision, dated April 2020 - -

- Makes administrative changes (throughout)
- Revised Chapter 7 (adds exceptions to the prohibition on refrigerant based air conditioning)
- Revised Chapter 7 (clarifies passive cooling measures required in all new construction and major renovation designs)
- Revised Chapter 7 (adds interior and exterior energy efficient lighting requirements)
- Revised Definitions (add definition of “Indirect Evaporative Cooling”)

*This document supersedes JBLM Regulation 420-1 dated 02 November 2017

Installations

Facility Energy Management Program



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History. This is a major revision.

Summary. The purpose of this regulation is to establish an effective energy management and resilience program at Joint Base Lewis-McChord (JBLM) that will give each unit or organization leader the responsibilities and tools to easily implement and maintain the program.

Applicability. This regulation applies to all organizations and activities operating on JBLM.

Proponent. The proponent for this publication is Directorate of Public Works, Environmental Division (IMLM-PWE).

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Directorate of Public Works, Environmental Division at usarmy.jblm.imcom.list.dpw-environmental-issues@mail.mil.

Distribution.

This publication is available electronically on the JBLM Intranet website:

<https://intra.lewis-mcchord.army.mil/dhr/forms/hfl/PubsSite/index.htm>

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Chapter 1

General

1-1. Purpose

The purpose of this regulation is to establish an effective energy management and resilience program at Joint Base Lewis-McChord (JBLM) that will give each unit or organization leader the responsibilities and tools to easily implement and maintain the program. Consequently, it prescribes procedures required to establish and maintain such a program including those required for the efficient management of facility energy.

1-2. Applicability

This regulation applies to all organizations and activities operating on JBLM, to include Joint Base Command directorates and offices; The U.S. Army Corps of Engineers; Active Duty, Reserve and National Guard Component commands and units; civilian agencies; and other tenant organizations. This includes the 62nd Airlift Wing and other Air Force elements on McChord Field under their identity as the Joint Base “Supported Component”. This document also serves as a resource document and guide for family housing occupants on JBLM.

1-3. References

References are listed in Appendix A.

1-4. Objectives

To improve the efficient use of energy and water in support of the Army’s Demand Reduction, and Energy and Water Security and Resilience goals; the JBLM Sustainability Program, and to support the IMCOM goal of reducing spending on delivered utilities.

- a. To increase energy awareness and resource efficiency management throughout the installation with regards to natural gas, fuel oil, water, and electricity.
- b. To develop projects and policies that move JBLM towards being capable of sustaining operations of critical missions for a minimum of 14 days in the absence of externally supplied utilities.
- c. To utilize the resulting efficiency improvements and monetary savings to help support the energy program, improve the installation, and contribute to readiness and preparedness.

To achieve and maintain 30 percent reduction in energy use intensity, as measured by BTU/SF, relative to a baseline of FY2003, and demonstrate continued progress for each fiscal year thereafter

Chapter 2

Responsibilities

2-1. Director of Public Works

- a. Acts on behalf of the Joint Base Commander on all energy matters.
- b. Coordinates and implements the Installation Energy Program.
- c. Establishes and staffs full time Energy Management Office within Public Works (PW), to coordinate the energy management program for the Joint Base Commander.
- d. Reviews waiver requests submitted by Units/Directorates seeking exemptions from JBLM Regulation 420-1, or other applicable regulations and forwards recommendations to Joint Base Commander for final disposition.

2-2. Public Works (PW)

- a. Manages and promulgates the Army energy management program in facilities and utility systems.
- b. Assures annual budgets address resource requirements to achieve facility energy goals.
- c. Includes energy considerations in stationing/re-stationing criteria.
- d. Ensures energy efficiency and energy resilience are included and considered in Military Construction, Army, and Minor Military Construction projects.
- e. Recommends energy conservation and energy resilience projects for funding, and seeks to utilize the Energy Resilience and Conservation Investment Program, (ERCIP), Productivity Enhancement Program, Utility Incentives, Energy Savings Performance Contracts, (ESPC), and Utility Energy Services Contract, (UESC), as funding sources, as available.
- f. Manages its own procurement process to ensure procurement of energy-efficient items on a life cycle, cost-effective basis. PW oversees the Installation Sustainable Acquisition Program, including procurement requirements for energy efficient items.
- g. Manages building shells, mechanical systems, controls systems, and utility systems to maximize energy savings.
- h. Validates energy conservation initiatives and projects prior to programming.
- i. Reviews master planning activities for passive energy settings, reviews project documentation for energy efficiency, and ensures energy considerations are programmed in the Annual Work Plan.

j. Provides monthly utility report in accordance with Army Energy and Water Reporting Systems (AEWRS) submission requirements.

2-3. Installation Energy Program Manager/Coordinator

a. Performs Energy Manager/Coordinator duties as listed in Army Regulation (AR) 420-1.

b. Develops and oversees energy projects and facility energy improvements.

c. Develops, schedules, and coordinates Army Energy Awareness Month/Week activities.

d. Develops and provides energy awareness training seminars for troop units and civilian personnel.

e. Coordinates and monitors energy program activities of troop units and civilian personnel.

f. Responds to requests or tasks from the Director of Public Works.

g. Represents JBLM at energy associations and activities.

h. Performs voluntary Energy Compliance Inspections upon request or as necessary for participation in energy incentive programs and inspection program.

i. Identifies, reviews, and makes recommendations to PW in regards to energy efficiency projects.

2-4. Units and Organizations

Commanders/Directors through company level are responsible for implementation of the Installation Energy Program within their areas. Commanders/Directors may delegate inspection and enforcement duties, but must maintain overall responsibility for the energy program. Commanders/Directors will:

a. Appoint one Energy Conservation Officer (ECO) for the unit/organization.

b. Appoint one Building Energy Monitor (BEM) per building for all unit/organization facilities which are occupied 10 hours or more per week.

c. Prepare energy conservation Standard Operating Procedure (SOP) and provide a copy to each designated subordinate ECO and BEMs.

d. Ensure personnel are aware of the command energy program and their responsibilities to it.

e. Responsible for submitting waiver request to the Director of Public Works when units/organizations require exemptions for heating or cooling at their facilities. Waiver requests submitted by an individual from any unit/organizations will not be considered for an exemption

Chapter 3

Army Energy and Water Reporting Systems.

3-1. Preparation of Reports

PW will prepare the monthly AEWRS report of facility energy and water consumption, all related quarterly reports, and the annual factors data.

3-2. Submission of Data

PW will obtain necessary information from internal sources and utility company billings.

Chapter 4

Unit/Organization Energy Coordinators

4-1. Designation of Energy Coordinators

a. Commanders/Directors will designate and appoint an ECO within their unit/organization to provide an effective energy management program at all levels. The name, rank/position, and duty telephone number and email address of all ECOs will be made available to PW and they will act as the Point of Contact (POC) for their unit activities.

d. Commanders/Directors will designate and appoint one BEM per building within their unit/ organization which are occupied more than ten hours per week. All assigned BEMs will be on file with the ECO and be available upon request to the PW Energy Office.

4-2. Energy Conservation Officer

a. ECOs act on behalf of the Commander/Director and should refer to this directive for responsibilities and guidance.

b. ECOs develop and monitor unit/organization Energy Conservation SOP. The SOPs will include consolidation plans for use of facilities when the unit is deployed away from JBLM.

c. ECOs will ensure that individual BEMs are identified for each building or living area.

d. ECOs serve as the technical point of contact and conduct annual inspections and quarterly night audits on all unit/organization occupied buildings.

e. ECOs will coordinate closely with their Repair and Utilities (R & U) teams and BEMs to assure timely repairs are made in facilities occupied by their unit/organization.

f. ECOs are required to attend annual energy training to learn about the JBLM Energy Program and overall Army policy regarding energy conservation. This training is modeled after the 'train-the-trainer' concept.

ECOs provide training to BEMs on policies and requirements applicable to energy conservation. Assistance in planning and presenting energy topics may be obtained from the PW Energy Program (253-966-9011).

4-3. Building Energy Monitors

a. BEMs are assigned to each building or living area (wing, floor, or quad) which are occupied more than 10 hours per week. They will assist the ECO by being the building POC for proper use and setting of thermostats, heat control valves, electricity, water, and natural gas conservation.

b. BEMs conduct a daily inspection at the end of each day and maintain records of the Daily Checklist.

c. BEMs serve as the POC for their respective buildings and report building maintenance problems promptly to the PW Customer Service Desk (253-967-3131) for repairs.

d. BEMs are trained by the ECO on policies and requirements applicable to energy conservation.

BEMs will provide training to building occupants. The purpose of the training is to instruct building occupants how to minimize energy waste.

Chapter 5

Training and Promotional Materials

5-1. Energy Posters

To promote energy awareness, units/organizations are encouraged to use posters, flyers or other display materials. Resources for promotional materials can be downloaded from Federal Energy Management Program (FEMP) website.

5-2. Energy Training

PW Energy Office will provide annual in-person Energy Conservation Training for ECOs. For current training schedules, contact the PW Energy Office at 253-966-9011.

a. PW Energy Office will provide online materials such as training modules, E-flyers, etc., for distribution within JBLM units/organizations. To obtain training materials contact PW Energy Office at 253-966-9011.

PW Energy Office will set up an Energy Kiosk at various locations on occasions such as Earth Day, Freedom Week, etc. Soldiers, civilians or students can collect pamphlets, brochures and learn about energy conservation best practices at these sites.

Chapter 6

Energy Compliance Inspections

6-1. Unit/Organization Energy Inspections

a. ECOs will establish an energy compliance inspection schedule to remind occupants that energy conservation is a part of their normal duty and to identify problem areas for further corrective action. The BEMs perform daily inspections during the performance of normal duties, however, ECOs should schedule and perform additional energy inspections.

b. All military and civilian personnel at JBLM are to be watchful for energy and water waste (lights and electric equipment left on unnecessarily, windows and doors open during the heating season, leaky faucets, buildings that are too warm, etc.). Corrections should be made immediately by notifying the BEM and/or ECO.

6-2. Public Works Energy Inspections

a. PW Operation and Maintenance Division (O&M) and the Directorate of Emergency Services will be watchful for cases of water and energy waste during performance of their normal duties. They will bring any obvious energy violation to the attention of the user or operator for correction.

b. Staff from PW Master Planning Division, Engineering Service Division, and Operations & Maintenance Division will perform voluntary energy compliance inspections of JBLM facilities. These inspections will be scheduled at the request of unit ECOs. PW will also provide energy inspectors for command inspections in coordination with the unit command.

6-3. Violation Reporting

Where feasible, small violations of this regulation at any level will be corrected immediately. Results of random checks by PW personnel will be reported to the building occupant. Repeated violations of this regulation will be reported to the JBLM Command Group.

Chapter 7

Energy Usage

The intent of this section is to ensure that energy use at JBLM is optimized to the greatest extent possible without sacrificing human comfort, and that we take full advantage of the mild marine climate enjoyed here in the Pacific Northwest. Designing facilities to work with our climate not only keeps facilities comfortable, it reduces our dependence on outside energy sources, reduces operations and maintenance costs, and improves our critical mission resilience.

7.1 Heating and Cooling

During the heating season (September through April) facilities will be maintained within authorized temperatures. During the summer months, (May through October), building heating systems, (other than domestic water heating), will be shut off, and interior temperatures will be allowed to follow the natural diurnal temperature swings.

1. Heating

Heating will be operated to provide reasonable comfort levels inside occupied spaces during occupied hours.

a. Temperature Set Points

- (1) Offices: occupied = 68°F; unoccupied = 55°F
- (2) Barracks: day (0600 – 2100) = 68°F; night (2100- 0600) = 63°F
- (3) Medical Facilities (not otherwise exempted by UFC 4-510-1):
occupied = 68°F; unoccupied = 55°F
- (4) Warehouse and Maintenance Bays: occupied = 60°F; unoccupied = 45°F
- (5) Gymnasiums (except natatoriums): occupied = 68°F; unoccupied = 55°F
- (6) Natatoriums; 3°F above water temperature.
- (7) Unoccupied facilities (where freezing and condensation are issues): 40°F
- (8) Unoccupied facilities (where freezing and condensation are NOT issues):
unheated.
- (9) Museums, (Non-archival areas): occupied = 68°F; unoccupied = 55°F, (Archival Areas): in accordance with AR 870-20 Army Museums, Historical Artifacts, and Art.
- (10) Precision Measurement Equipment Laboratory: heat according to Air Force Manual 32-1094, Criteria for Air Force Precision Measurement Equipment Laboratory Design and Construction.

(11) Child Development Centers: occupied = 68°F; unoccupied = 55°F.

b. Electrical space heaters are strictly prohibited per AR 420-1, Army Facilities Management, 22-12b (2), unless written approval is granted by the Director of Public Works.

2. Cooling

Refrigerant based air conditioning (AC) to achieve thermal comfort (comfort cooling) is not authorized in most buildings at JBLM due to the prevailing mild marine climate (ASHRAE Climate Zone 4C). Passive cooling strategies, including but not limited to; site orientation, natural ventilation, operable windows, mechanical comfort ventilation, nighttime air flushing, multi-speed fans, increased insulation, window shading, and increased building thermal mass, (including the use of Phase Change Materials (PCM)), shall be implemented to the greatest extent possible to minimize or eliminate AC runtime.

a. New Construction: All new construction buildings shall be designed such that occupied areas are able to meet ASHRAE Standard 55 (Thermal Environmental Conditions for Human Occupancy), using either the Adaptive Method, or the Elevated Air Speed Method, during normally occupied hours, without the use of refrigerant based comfort cooling (AC). Initial hour-by-hour modeling of the building is required at the submittal stage, with final hour-by-hour modeling of the building completed prior to 65% design.

(1) If hour-by-hour modeling shows that specific rooms or spaces are not able to meet ASHRAE Standard 55 during normally occupied hours, despite including all passive cooling strategies listed in paragraph 1b of this chapter, a waiver requesting AC for the specific rooms or spaces shall be submitted to the Director of Public Works. The waiver request shall include; a staff summary explaining the need for AC; the room(s), area(s) or zone(s) for which AC is being requested; the ASHRAE Standard 55 method used, (Adaptive or Elevated Air Speed), the number of occupied hours per year the room/area/space fails to meet the thermal comfort standard, the size and type of AC being requested, and the inputs used for all calculations. A Life Cycle Cost Analysis (LCCA) must be completed in accordance with UFC 1-200-02 High Performance and Sustainable Building Requirements, 1-7.

(2) If the need for refrigerant based cooling has been demonstrated through hour-by-hour modeling, the designer must evaluate at least two different systems. Water cooled chillers (requiring cooling towers) are not authorized.

(3) EXCEPTIONS:

(a) Barracks: New construction barracks, barracks undergoing major renovation, (project cost exceeds 50% of Estimated Replacement Cost (ERC), per UFC 1-200-02 Table 1-1), or barracks with HVAC systems that are undergoing a major repair are allowed to install refrigerant based comfort cooling. Designers are required to include all effective passive cooling design strategies listed in paragraph 1b of this chapter in order to minimize AC runtime.

(b) Indirect Evaporative Cooling Technologies, (where a heat exchanger being cooled by evaporation of water is used to cool incoming air and which does not add humidity to the

building): Designs that exclusively use indirect evaporative cooling systems to provide comfort cooling, are allowed to proceed without requesting a waiver from this regulation.

(c) Dedicated cooling or dehumidification of equipment areas (e.g. server rooms, telecommunications rooms, evidence storage areas, weapons storage areas, etc.) is permitted without waiver provided that: the area is not a normally occupied area; the area is individually conditioned and controlled separately from the occupied spaces; the dedicated system takes full advantage of free cooling; and the temperature set points adhere to ASHRAE Standards, UFC Standards, Regulation, Technical Manual, Technical Order, or manufacturers recommendations.

(d) All buildings located at the Yakima Training, (YTC). YTC, being located in Climate Zone 5B, experiences much greater variation in temperature than JBLM, including periods of much higher temperatures. New construction and major renovation projects are required to include all effective passive cooling design strategies in paragraph 1b of this chapter in order to minimize AC runtime.

NOTE: Cooling or dehumidification that was originally installed to service equipment areas must be removed when the space no longer qualifies for exemption, (i.e. when a server room gets turned in to a classroom).

b. Major Renovation or HVAC System Repair: If an existing building, with or without AC, is to undergo a major renovation (project cost exceeds 50% of Estimated Replacement Cost (ERC) per UFC 1-200-02 Table 1-1), or if the HVAC system in a building is undergoing a major repair, the project shall be subject to the same requirements as in 7-1, b, i New Construction.

c. Small Project or Comfort Cooling Request: Installation of small AC systems, (e.g. ductless heat pumps) is not authorized. Requests for building wide comfort cooling systems will only be entertained once all reasonable passive cooling strategies have been implemented and data logging or building modeling demonstrates that the space will fail to meet the ASHRAE Standard 55 Adaptive Comfort Model or Elevated Air Speed Model during occupied hours.

d. Window mounted or portable AC units are strictly prohibited.

e. Temperature Set Points (for buildings with approved cooling systems).

(1) Offices: occupied = 78°F; unoccupied = 85°F (NOTE; unless otherwise required, AC systems will be locked out when the indoor operative temperature of spaces authorized to have AC is less than 78°F)

(2) Medical and Medical Research (unless exempted by UFC 4-510-01): occupied = 78°F; unoccupied = 85°F (NOTE; unless otherwise required, AC systems will be locked out when the indoor operative temperature of spaces authorized to have AC is less than 78°F)

(3) Museums, (Non-archival areas): occupied = 78°F; unoccupied = 85°F, (Archival

Areas): in accordance with AR 870-20 Army Museums, Historical Artifacts, and Art. (NOTE; unless otherwise required, AC systems will be locked out when the indoor operative temperature of spaces authorized to have AC is less than 78°F)

(4) Precision Measurement Equipment Laboratory: cool according to Air Force Manual 32-1094, Criteria for Air Force Precision Measurement Equipment Laboratory Design and Construction.

3. General

a. Buildings envelopes must be weatherized in a manner that minimizes air infiltration around doors, windows, and skylights, and meets the requirements of the current International Energy Conservation Code (IECC).

b. Windows and doors must remain closed during the heating season. HVAC designers must include control features that lock out heating if doors or windows are blocked open.

c. For buildings with approved cooling: Windows and doors in the rooms/areas/zones that have approved cooling must remain closed during times of mechanical cooling. HVAC designers must include control features that lock out air conditioning if doors or windows are blocked open in the room(s)/area(s)/zone(s) that have air conditioning.

7.2 Lighting

1. Interior Lighting

Interior lighting is improving and changing faster than standards can keep up. To that end, the intent of this regulation is to ensure that new construction, remodels, restorations, use changes, repairs, and retrofits are using the most life cycle cost effective lighting solution available.

a. The interior lighting Correlated Color Temperature, (CCT), will be consistent throughout the building. Check with the Electrical System Administrator, the Design Branch Manager or the Energy Manager to find out what color should be installed. As of the signing of this document the CCT for all interior lamps on JBLM is 4000K. (This is not meant to imply that 4000K is the only acceptable color. As research into the effect of light color on human health continues, other CCTs may be desired.) At no time may any single room have lamps with different CCT.

b. Unless specified by overriding regulation, incandescent, compact fluorescent, and linear fluorescent lighting is only authorized for use until replaced. Replacement must be by the most energy efficient technology that is LCC effective; currently that is LED. If LED lamp replacement is not available consider replacing the entire fixture.

c. All interior lights shall be turned off when not in use.

d. Keep all lamps and fixtures clean (if safe to do so)

e. Install Occupancy Sensors to control lighting whenever possible.

f. Evaluate room lighting for potential daylight harvesting.

g. If daylight harvesting is viable (e.g. the room has windows), daylight sensors must be installed, and the lighting configured to decrease in output as the sunlight takes over the lighting needs.

i. All non-emergency building lights, including restroom lights and fans, shall be turned off at close of business.

2. Exterior Lighting

Exterior lighting shall be designed to eliminate light pollution. All exterior lighting will adhere to ASHRAE 90.1 (current) Section 9 (reference 18) and ASHRAE 189.1 (current) Section 5.3.6, except as required by AR 190-13 The Army Physical Security Program. Exterior lighting and exterior lighting controls are improving faster than standards can keep up. To that end, the intent of this regulation is to ensure that all newly installed lights, retrofit lamps and all building mounted lights are designed, and controlled, to provide only the amount of light necessary to accomplish the mission; that they do not produce glare; that they are not on during daylight hours, and that all light is directed down (full cut off).

a. Exterior lighting CCT will be consistent throughout JBLM. Check with the Electrical System Manager, the Planning Branch Chief or the Energy Program Manager to find out what color should be installed. As of the signing of this document, the CCT for all lamps on JBLM is 4000K. (This is not meant to imply that 4000K is the only acceptable color. As research into the effect of light color on human health continues, other CCTs may be desired.) At no time shall any contiguous lighting area have lamps with different CCTs).

b. Unless specified by overriding regulation, High Pressure Sodium, (HPS), Low Pressure Sodium, (LPS), Metal Halide, (MH), and Induction lighting are only authorized for use until replaced. Replacement must be by the most energy efficient technology that is LCC effective; currently that is LED. If LED lamp replacement is not available, consider replacing the entire fixture.

c. All exterior lighting projects or installations to be executed on JBLM Main or on McChord Field shall be reviewed and approved by the airfield manager to ensure that exterior lighting does not pose a hazard to air traffic operations.

7.3 Equipment

1. Purchase only Energy Star labeled (under the most current Energy Star standard) or Federal Energy Management Program (FEMP) compliant products and appliances in accordance with Section 104 of the Energy Policy Act of 2005. [In addition, all refrigerants shall be approved for sector and end use by the Environmental Protection Agency's Significant New Alternatives Policy \(SNAP\) program.](#) Submittals or records must include cut sheets or other documents validating compliance.

2. Maximize use of consolidated network printers. Personal non-network printers are not authorized unless written approval is granted by the Commander / Director of Public Works. Copiers and printers will be configured and enabled to enter low energy usage mode when not in use for more than 30 minutes.
3. Refrigerators are authorized in work and office areas for area use with sizing based on number of personnel supported. Use one cubic foot per person as an average to determine size and quantity of refrigerators that are appropriate. Refrigerators in work areas and offices intended for only one person's use are prohibited per AR 420-1, section III.
4. General purpose office equipment, all-in-one devices and similar equipment will be turned off at the end of every business day. Computer monitors and peripheral devices such as speakers, scanners, and external drives, shall be turned off when not in use. Consideration should be given to using a power strip for all external devices to use, which consolidates turning off the devices and the associated transformers that are required for these devices.
5. Ensure electrical equipment (for example monitors, fans, and coffee pots) are turned off during unoccupied hours.
6. Replace all motors and pumps with high-efficiency motors and pumps every time a replacement is required. Prohibit rewinding or replacing with the same efficiency.
7. Eliminate and remove all extra refrigerators, microwaves, coffeepots and other appliances that service only one or two persons except as permitted by AR 420-1, Chapter 22.

Chapter 8

Winterization and Deployments

8-1. Winterization and Deployments

If the unit is to be absent for more than two weeks during the heating season, request for utilities winterization/de-winterization will be submitted to the PW Customer Service Desk (253-967-3131), not less than 10 days prior to departure. If deployment is for less than two weeks, ECO will ensure that energy using systems in unit buildings have been turned off (lights, electronic equipment, etc.).

8-2. Objectives

- a. Ensure the essential requirements of heat, electricity and water are provided without waste.
- b. Provide proper protection of facilities against freeze damage.
- c. Ensure efficient management of labor and materials required for utility actions.
- d. Maintain up-to-date and accurate reporting of utility status.

8-3. Responsibilities

a. Commanders and Organization Chiefs.

- (1) Maintain efficient and effective utilization of utilities in support of mission requirement.
- (2) Request winterization of facilities which are not required for two or more weeks during the heating season
- (3) Request temporary turn off for facilities not required during the non-heating season.
- (4) Manage requests for utilities to prevent duplication; for this purpose, utility requests will be signed at the same level as building acceptance.
- (5) Schedule building usage for consecutive time periods to avoid repeated winterization/de-winterization within a heating season. Consolidate activities into the fewest possible facilities and request winterization of unoccupied buildings.
- (6) Conduct all necessary self-help building R&U on facilities in their areas of responsibility.
- (7) Report inoperative heating systems or heat control equipment (including equipment in unoccupied buildings) promptly to the PW Work Order Desk, 253-967-3131.
- (8) Ensure Unit ECO/BEMs are appointed in accordance with JBLM Reg 11-1.

b. Unit Energy Conservation Officers.

- (1) Prevent freeze damage to automatic fire sprinkler standpipe systems and other utility systems that may be damaged by freezing by properly adjusting temperature set points.
- (2) Protect untreated water fire extinguishers from freezing. For additional information contact DES Fire Prevention and Protection Division.
- (3) Promptly report all inoperative, defective or vandalized equipment to PW Work Order Desk 253-967-3131 and follow through to ensure repair.
- (4) Coordinate with unit R&U personnel or BEMs to ensure buildings are maintained properly.

8-4. Policy

- a. In accordance with AR 420-1, (most current edition), Army energy resources will be

intensely managed to assure the efficient and effective utilization consistent with mission readiness, health and safety requirements. Essential requirements for heat, electricity, and water will be provided without waste.

b. Installation activities will be consolidated into the minimum number of facilities essential to accomplish their mission. Personnel will be grouped to utilize space wisely; facilities with few or infrequent occupants will be closed and winterized; heated space will be used efficiently.

Heat will not normally be provided when outdoor temperatures exceed 65 degrees Fahrenheit except for hospitals, other medical and dental facilities, and special requirement areas.

8-5. Procedures

a. All requests for utility authorization or change in status (i.e., turn-on/turn-off; winterization/de-winterization) will be submitted not less than 10 days prior to departure to PW Work Order Desk, 253-967-3131.

b. JBLM exercises an annual summer heat shut off program to conserve natural gas, fuel oil, permit regular preventive maintenance on heating systems and conform to Department of the Army and Federal energy goals. Heating systems are typically turned off at the beginning of May, and are turned back on at the beginning of October.

c. Request for exceptions to this schedule will be forwarded to PW Work Order Desk 253-967-3113 not less than ten working days prior to the scheduled shut off.

Chapter 9

Exemptions

9-1. Exemptions

Requests for exemptions to this regulation will be considered by the Joint Base Commander (JBC). The JBC delegates approval authority of exemption requests to the Director of Public Works. Any appeal of the Director's decision will be forwarded to JBC by the unit/organization. To request an exemption, the Energy Conservation Officer of the unit/organization will provide PW with the information listed below:

- a. Provide a staff summary explaining the situation.
- b. Justify need for exemptions (Army or Air Force Regulations, Technical Manuals, Bulletin, etc.).

Refer to related chapters in this regulation for specific exemption requirements.

Appendix A References

Section I

Required Publications

Unless otherwise indicated, JBLM publications are available on the JBLM Publications and Forms site: (<https://intra.lewis-mcchord.army.mil/dhr/forms/hfl/PubsSite/index.htm>) or https://army.deps.mil/army/cmds/imcom_usag6/JBLM-w/DHR/pubs/SitePages/Home.aspx; Army Regulations are available at (<http://www.apd.army.mil/>); Department of Defense regulations are available at: (<http://www.dtic.mil/>).

EPACT of 2005

Energy Policy Act, 8 Aug 2005

EISA of 2007

Energy Independence and Security Act, 19 Dec 2007

Executive Order 13834

Efficient Federal Operations, 17 May, 2018

NOTE: For all Standards, Regulations, Policy Letters, and all other guiding documents, it is the intent of this regulation that the most current version shall be used.

Air Force Manual (AFMAN) 32-1094

Criteria for Air Force Precision Measurement Equipment Laboratory Design and Construction

AR 420-1

Army Facilities Management

AR 870-20

Army Museums, Historical Artifacts, and Art

ASHRAE Standard 55, 2013

Thermal Environmental Conditions for Human Occupancy

Unified Facilities Criteria (UFC) 1-200-02

High Performance and Sustainable Building Requirements

UFC 3-400-01

Energy Conservation

UFC 4-510-01

Medical Military Facilities

UFC 3-410-01FA

Heating Ventilating and Air Conditioning

DA Building Energy Monitor's Handbook**FL Reg 200-1**

Environmental Protection and Enhancement

FL Reg 420-30

Fire Prevention and Protection

Assistant Secretary of Army, IEE (Installations, Energy and Environment)

Sustainable Design and Development Policy, 13 Dec 2013

Assistant Secretary of Army, IEE, (Installations, Energy and Environment)

Budget Guidance, FY 2013

Section II**Related Publications**

A related publication is a source of additional information. The user does not have to read a related publication to understand this regulation.

This section contains no entries.

Section III

Prescribed Forms

Unless otherwise indicated, JBLM publications are available on the JBLM Publications and Forms site: (<https://intra.lewis-mcchord.army.mil/dhr/forms/hfl/PubsSite/index.htm>) or https://army.deps.mil/army/cmds/imcom_usag6/JBLM-w/DHR/pubs/SitePages/Home.aspx; DA forms are available on the APD Web site (<http://www.apd.army.mil>); DD forms are available from the OSD Web site (<http://www.dtic.mil/whs/directives/infomgt/forms/index.html/>).

This section contains no entries.

Section IV

Referenced Forms

Unless otherwise indicated, JBLM publications are available on the JBLM Publications and Forms site: (<https://intra.lewis-mcchord.army.mil/dhr/forms/hfl/PubsSite/index.htm>) or https://army.deps.mil/army/cmds/imcom_usag6/JBLM-w/DHR/pubs/SitePages/Home.aspx; DA forms are available on the APD Web site (<http://www.apd.army.mil>); DD forms are available on the OSD Web site (<http://www.dtic.mil/whs/directives/infomgt/forms/index.html/>).

This section contains no entries.

Appendix B

Guidelines for Implementing an Energy Conservation Program

Enclosure 1

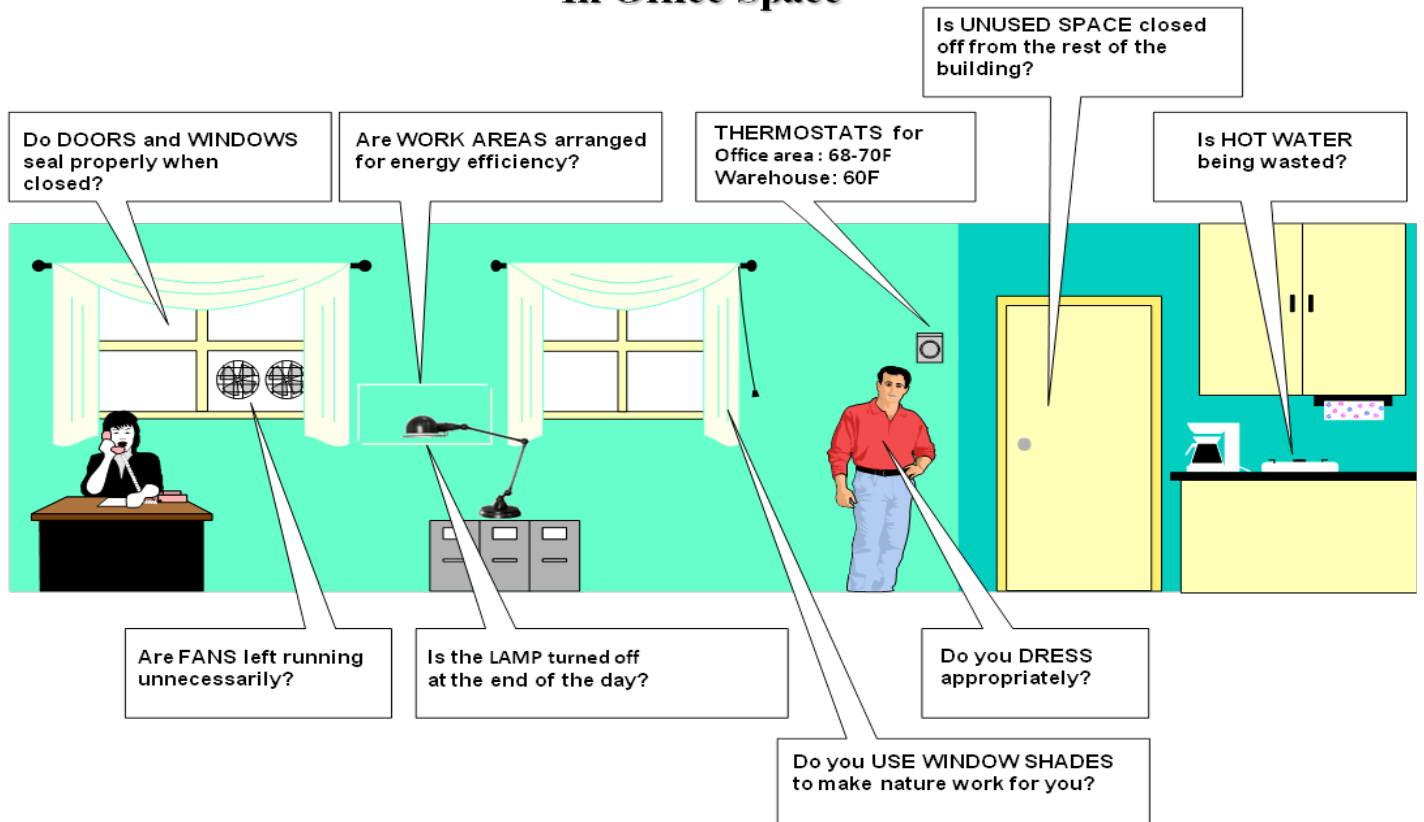
EXAMPLE BUILDING ENERGY MONITOR CHECKLIST

ENERGY CONSERVATION BEM CHECKLIST (DAILY)																																
BEM: _____										MONTH: _____					BLDG#: _____					BRIGADE/BATTALION/COMPANY: _____												
BLDG	DAYS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ADMIN/OFFICE SPACE:																																
1. Doors/windows closed at the end of day																																
2. Thermostats work and set at proper temperature (if applicable)																																
3. Water faucets and showers are turned off, check for water leakage																																
LIGHTS:																																
1. Lights turned off in unoccupied areas and during weekends																																
2. Restroom lights and fans turned off after daily use																																
MOTOR POOL/MAINTENANCE AREA:																																
1. Compressors turned off																																
2. Generators turned off																																
3. All lights turned off after daily use and in weekends																																
4. Ventilation fans and hoods off when not in use																																

Enclosure 2

GRAPHIC DIAGRAM OF DAILY BEM CHECKLIST

Energy Conservation In Office Space



Appendix C

Energy ECO and BEM Appointment Orders

IMLM-xxx

MEMORANDUM FOR RECORD

SUBJECT: Appointment Order

1. **EFFECTIVE:** **DATE** , the following individual is appointed as the Energy Conservation Officer (ECO) / Building Energy Monitor (BEM) for Unit/Directorate:

- a. Name:
- b. Email Address:
- c. Phone Number:

2. **PURPOSE:** To implement requirements outlined in JBLM Reg 11-1 and the Energy Conservation Standard Operating Procedure (SOP).

3. **PERIOD:** Until officially relieved or released from appointment or assignment.

Commander's name
Rank
Commanding

Appendix D

Battalion / Organization Energy Conservation Checklist

UNIT: _____ DATE: _____

Functional Area: ENERGY CONSERVATION

ADMINISTRATIVE ACTIONS:	Yes	No	N/A	Action
1. Current Battalion Energy Conservation SOP on file				
2. Current Battalion Energy Conservation SOP dated and signed by Unit Commander				
3. Energy Conservation Officer appointed by the Commander				
4. All Battalions have following regulations on hand				
a. AR 420-1				
b. JBLM Reg 420-1				
c. FL Reg 200-1				
5. Battalion Energy personnel completed energy awareness training				
BATTALION ACTIONS:	Yes	No	N/A	Action
6. Written instruction on unit Energy SOP during non-duty hours maintained at the unit CQ				
7. Personnel are aware of, and follow energy conservation instructions during non-duty hours				
8. Unit has appointed BEMs for each building				
9. Unit facility activities are consolidated during non-duty hours				
10. Administrative work areas are consolidated to the maximum extent possible				
11. All Unit facilities are properly winterized from October through April				
12. Unit has energy conservation and awareness poster displayed in common areas				
13. Unit R&U team members are on current DOL/PW support signature card				
14. Work orders are maintained for any work requiring Public Works assistance				
15. Save Energy stickers are posted on light switches				
16. Outside lights turned off during daylight hours				

17. Light fixtures are clean and well maintained for effective lighting				
18. Light bulb wattage is within authorized limits				
19. Notices posted on each clothes dryer, to empty lint traps after each load				
20. Notices posted at each washer, to wash clothes in cold water whenever feasible				
BARRACKS/Common Areas/Building Inspections	YES	NO	N/A	Action
22. Thermostat temperatures set at or below authorized levels.				
23. Thermostats show no evidence of tampering or vandalism.				
24. Nighttime thermostat setbacks in place				
25. All windows and exterior doors closed in conditioned spaces during the heating season				
26. All windows and doors caulked and weather-stripped properly				
27. No space heaters or air conditioners present unless PW written approval is on hand				
28. Building occupants briefed annually on basic controls of the heating system				
29. Plumbing fixtures leaking or in need of repair				

REMARKS:

Inspector: _____

Appendix E

Energy Conservation Checks for the CQ/Door Manager

This checklist will be recorded in the CQ Log. Correct any deficiency on the spot or notify the ECO or BEM immediately.

1. All interior lights in unoccupied areas are turned off.
2. Exterior lights are turned off during daylight hours.
3. All electronic equipment is turned off when not in use.
4. Low flow shower heads and faucets aerators are installed.
5. Plumbing fixtures are not leaking.
6. Windows and doors are closed when building heat is on.
7. Windows and doors are properly weather-stripped and caulked.
8. Space heaters are not used without written approval from Director of PW.

Appendix F

Electricity Use Instructions

1. Turn off lights, electric motors, ranges, ovens, TVs, personal computers (computers connected to the network must remain powered at all times – monitors may be turned off) stereos, and other electrical devices when not in use .
2. Turn off all manually switched outside entrance lights and floodlights during daylight hours. Off-hours exterior lighting will be eliminated except when it is essential for safety purposes. Any exterior lighting on automatic switches that do not shut off in the daylight should immediately be reported to PW service desk at 253-967-3131.
3. Interior night-lights will be kept to an absolute minimum consistent with safety and will generally be limited to hallways and stairways.
4. During daylight hours, lights will be switched off in all unoccupied rooms as soon as the room is vacated. Even energy efficient lighting will be switched off when the room is vacated, regardless of the expected duration of vacancy.
5. ECOs and BEMs should identify areas where many lights are controlled by a single switch and submit a Service Order to request rewire for individual/bank control of the lighting. When lighting is to be reduced, call PW work order desk, 253-967- 3131, to have the fixture disconnected. Removing only the light tube, but not the ballast may create a fire hazard and does not totally eliminate energy consumption.
6. Maximum light levels will not exceed facility-installed capacity unless written permission is granted by the Garrison Commander. The amount of light required above the maximum may be limited by the design capacity of the installed wiring.
7. Below are examples of horizontal luminance levels from the Illuminating Engineering Society, (IES), for various spaces and activities, measured in lux, (lumen/m²).
 - Offices and Workstations – 300 Lux
 - Corridors and Hallways – 100 Lux
 - Dining Facilities – 300 Lux
 - Classroom – 300 Lux
 - Gymnasium (general exercise) – 300 Lux
 - Gymnasium (basketball court) – 500 Lux
 - Hangar – 1000 Lux

8. To determine lighting levels in your work area contact the PW Energy Office for assistance (253-966-1772 or 966-9011).
9. Remove all incandescent bulbs and replace with LED lamps.
10. Replace all motors and pumps with high-efficiency Energy Star equipment every time a replacement is required. Prohibit rewinding or replacing with the same efficiency.
11. Eliminate and remove all extra refrigerators, microwaves, coffeepots and other appliances that service only one or two persons except as permitted by AR 420-1, Army Facilities Management, Chapter 22.

Glossary

Section I

Acronyms & Abbreviations

AEWRS

Army Energy & Water Reporting Systems

ASHRAE

American Society of Heating, Refrigeration, and Air-Conditioning Engineers

BOID

Business Operation & Integration Division

BEM

Building Energy Monitor

BTU

British Thermal Unit

CLO

Clothing or garment insulation unit

CQ

Charge of Quarters

DES

Directorate of Emergency Services

ECO

Energy Conservation Officer

ED

Environmental Division

FC

Foot Candle

FEMP

Federal Energy Management Program

GAL

Gallon

HVAC

Heating, ventilating, and air conditioning

KW

Kilowatt

KWH

Kilowatt Hour

KSF

Thousand Square Feet

MMBtu

One million British thermal units

PW

Public Works

R&U

Repair & Utilities

SOP

Standard Operating Procedures

SRM

Sustainment Restoration and Modernization

Section II

Definitions

Building Envelope

The skin of a building, separating the exterior and interior environment; a key factor affecting a building's energy efficiency.

De-winterization

The returning to service of utilities and fuel supplies that were winterized

Energy Audit

A formal study conducted to evaluate a facility's energy utilization. Audits vary in intensity from a Level 1 walkthrough to a detailed Level 3 analysis.

Environmentally Preferable Products

Products and services (that) have a lesser or reduced effect on human health and the environment at some stage of their life cycle (production, consumption, or disposal) when compared to other products and services that serve the same purpose.

Foot Candle

A Foot Candle is measurement of light intensity. One Foot Candle refers to one Lumen of light on one square foot of area.

Green Procurement

See "Sustainable Acquisition."

Indirect Evaporative Cooling

Indirect evaporative cooling uses a heat exchanger to cool the air supplied to the occupied space. The heat exchanger is cooled by the evaporation of water. Humidity is not added to the cooled air being supplied to the building.

Inventory Control

Managing materials in a manner that increases efficiency and reduces waste or excessive oversupply. This includes internal supervisory checks to avoid material downgrade, product loss (spillage, pilfering, etc.), lack of accountability, unauthorized or incorrect ordering, unauthorized issue or turn in, and other factors leading to waste.

Lumen

Lumen is measure of amount of light emitted by a light source

Net Zero Energy Installation

An installation that produces as much energy on site as it uses, over the course of a year.

Organization

Army: (Battalion, Brigade, Division); Air Force (Group, Wing)

Sustainable Acquisition (also known as Green Procurement)

The procurement of environmentally preferable products in accordance with federal laws, Executive Orders and DoD policy. Such products generate less waste, utilize renewable resources and pose less health and safety risks. See <https://sftool.gov/greenprocurement> and <http://www.denix.osd.mil/spp/for> for more information.

Turn off

The temporary discontinuance of any utility without winterization.

Turn on

The returning of service of a utility that has been turned off.

Unit

Army: (Platoon, Company) According to Air Force Organizational Structure (Section, Flight, Squadron)

Waste

Inefficient resource utilization that results in unused product that must be disposed or otherwise addressed. Also, the unused byproduct of any such utilization. Inefficient products and processes waste material, energy, water and monetary resources; foul air, land and water; and increase health and safety risks to base personnel and the surrounding community.

Winterization

Action taken to minimize energy use and protect facility systems from possible damage by freezing weather during deployment.

Section III**Special Abbreviation and Terms**

This section contains no entries