

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

Installation

**Facility Energy
Management
Program**

**Headquarters
Joint Base Lewis-McChord
Joint Base Lewis-McChord, WA
2 November 2017**

SUMMARY of CHANGE

JBLM Reg 420-1 Facility Energy Management Program

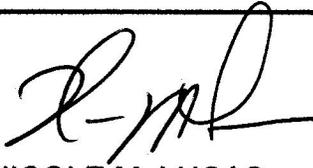
This minor revision, dated 2 November 2017 - -

- Makes administrative changes (throughout)
- Revised Chapter 1 (revised objective at 1- 4.c)
- Revised Chapter 5 (5-1 deleted inactive web link)
- Revised Chapters 7 (revised temperature set points & deleted inactive web link)
- Revised Chapters 7 (added Air Conditioning requirements)
- Revised Appendix A (added ASHRAE Standard 55)
- Revised Appendix E (revised *h.* space heater approval procedures)
- Revised Appendix G (added abbreviations for ASHRAE)

Effective NOV 02 2017

Installations

Facility Energy Management Program



NICOLE M. LUCAS
Colonel, LG
Commanding

Official:



Curtis F. Atkinson
CHIEF, Administrative
Services Division,
Directorate of Human
Resources

History. This regulation contains minor revisions to the previous edition.

Summary. The purpose of this regulation is to establish an effective energy management 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 the 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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*This publication supersedes JBLM Regulation 420-1, dated 8 April 2015.

JBLM Reg 420-1 • NOV 02 2017

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Chapter 1 General

1-1. Purpose

The purpose of this regulation is to establish an effective energy management 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; 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 increase the efficient use of energy in support of the JBLM Sustainability Program and Net Zero Energy goal and obtain the maximum return from every dollar expended for energy resources.

- a. To increase energy awareness and resource efficiency management throughout the installation with regards to natural gas, fuel oil, water, and electricity.
- b. To utilize the resulting efficiency increase and monetary savings to help support the energy program, improve the installation and contribute to readiness and preparedness.
- c. To decrease the JBLM consumption of energy by 2 ½ % percent each year based on 2015 consumption levels.

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 energy management program for the Joint Base Commander.
- d.* Reviews waiver requests submitted by Units/Directorate seeking exemptions from JBLM Regulation 420-1, or other applicable regulations and forward recommendations to Joint Base Commander for final approval.

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/conservation and renewable energy measures are included and considered in Military Construction, Army, and Minor Military Construction projects.
- e.* Recommends energy conservation projects for funding and seeks to utilize the Energy Conservation Investment Program, Productivity Enhancement Program, Utility Incentives, Energy Savings Performance Contracts and Utility Energy Services Contract 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 Installation Sustainable Acquisition Program, including procurement requirements for energy efficient items.
- g.* Manages building shells 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 fuel 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.

b. 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.

g. 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.

e. 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.

b. 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

7-1. Heating and Cooling

During the heating season (September through May) facilities will be maintained within authorized temperatures plus or minus two degrees Fahrenheit. The Directorate of Public Works (DPW) will publish heating schedules annually via the JBLM Daily Bulletin.

a. Heating temperature set points:

(1) Offices: occupied = 68° F (not to exceed 70° F); unoccupied = 55° F

(2) Barracks: daytime (18hrs) = 68° F (not to exceed 70° F); nighttime (6 hrs.) = 63° F, when technically feasible.

(3) Medical Facilities: occupied = 68° F (not to exceed 70° F); unoccupied = 55° F; (unless exempted by UFC 4-510-1)

(4) Warehouse and Maintenance Bays: occupied = 60° F; unoccupied = 45° F

(5) Gymnasiums: occupied = 68° F; unoccupied = 55° F

(6) Unoccupied facilities: 40°F (where freezing and condensation are issues)

(7) Unoccupied facilities: unheated (where freezing and condensation are NOT issues)

(8) Museum: heated according to AR 870-20

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

(10) Child Development Center: occupied = 68° F; unoccupied = 53° F.

b. Heating will be operated to provide reasonable comfort levels inside occupied buildings.

c. Electrical space heaters are strictly prohibited per AR 420-1, Army Facilities Management , 22-12b (2) where the intent is to circumvent the heating standards, unless written approval is granted by the unit / organization and Director of Public Works.

d. Air Conditioning (AC) is generally not authorized in buildings at JBLM to achieve thermal comfort (comfort cooling) due to the prevailing mild marine climate (ASHRAE Zone 4C). Consideration should be given to site orientation, natural ventilation, comfort ventilation, nighttime air flushing of spaces, multi-speed fans, increased insulation, improved shading, increased building thermal mass and other passive cooling applications for any new facilities to maintain optimum indoor temperature per ASHRAE Standard 55. Dedicated cooling of equipment areas, for example computer servers, is authorized provided it is a dedicated area that is separately controlled from occupied work areas.

e. AC in New Construction – all new buildings should be designed to meet ASHRAE 55 with the following exception: If design calculations indicate that the temperature will exceed the Clo 0.5 zone (per ASHRAE 55) despite the use of natural ventilation, free-cooling, and other measures described in Section 7-1-d, a waiver requesting AC for comfort cooling shall be submitted to the Director of Public Works. Waiver request should include a staff summary explaining the need for AC, include the following information for each heating, ventilation, and AC zone in which AC is requested: number of occupied hours per year temps will exceed 80 degrees F, 85 degrees F, and 95 degrees F respectively, if comfort cooling is installed; 25 years life cycle operating cost of comfort cooling; and type of comfort cooling system proposed. Provide at least two comfort solutions (for both heating/cooling) of which one should be an “all-electric” based system. Also provide hour-by-hour simulation of indoor conditions using comfort ventilation.

f. AC in Existing Buildings - If an existing building, with or without a comfort cooling system, is to undergo a major renovation (project cost exceeds 50 percent of plant replacement value per UFC 1-200-02, 1-5 Table 1-1 or major HVAC component repair) electric heating and cooling systems shall be evaluated for Life Cycle Cost effectiveness to meet ASHRAE 55 criteria. To install AC in existing buildings, justify needs by showing indoor temperature will exceed the Clo 0.5 zone (per ASHRAE 55) despite the use of natural ventilation, free-cooling, and other measures described in Section 7-1-d.

g. Buildings approved for installation of AC systems shall maintain indoor temperatures as follows:

(1) Offices: Occupied = 78 degrees F plus or minus 2 degrees F; Unoccupied = 85 degrees F plus or minus 2 degrees F.

(2) Medical and Medical Research: same as above, unless exempted by UFC 4-510-01.

(3) Museums: cooling according to AR 870-20.

(4) Precision Measurement Equipment Laboratory: cooling according to AFMAN 32-1094.

h. Buildings should be weatherized properly. Windows and doors will be closed during the heating seasons. If the building has mechanical cooling systems, windows will be closed during the time of cooling.

7-2. Lighting

- a. Make use of high efficiency fluorescent lights/LED lamps where appropriate.
- b. Lights will be turned off when rooms are not in use.
- c. Keep lamps and fixtures clean (only those that can be safely accessed).
- d. Turn off outside lights during daylight hours (if automatic shut-off is not working notify Public Works service order desk at 253-967-3131).
- e. Use task lighting (table lamp) whenever possible.
- f. Install Occupancy Sensors to control lighting when determined to be cost effective.
- g. Keep restroom lights and fans turned off after daily use.
- h. Remove all incandescent bulbs (A19 style and other varieties) and replace with high efficiency fluorescents bulbs or LED lamps.

7-3. Equipment

a. Purchase only Energy Star rated products and appliances. Information about products can be found at:

http://www.energystar.gov/index.cfm?fuseaction=find_a_product.

b. 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.

c. 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.

d. 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 ease and

consolidate turning off the devices and the associated transformers that are required for these devices.

e. Ensure electrical equipment (for example monitors, fans, and coffee pots) are turned off during unoccupied hours.

f. Replace all motors and pumps with high-efficiency Energy Star motors and pumps every time a replacement is required. Prohibit rewinding or replacing with the same efficiency.

g. 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), 10 to 20 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.

(6) Consolidate activities into the fewest possible facilities and request winterization of unoccupied buildings.

(7) Conduct all necessary self-help building R&U on facilities in their areas of responsibility.

(8) Report inoperative heating systems or heat control equipment (including equipment in unoccupied buildings) promptly to the PW Work Order Desk, 253-967-3131.

(9) 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, 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.

c. 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 at least 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. The schedule for the heat shut off program will be published in the Daily Bulletin to advise all non-family building occupants of the scheduled cutback.

c. Request for exceptions to the published schedule will be forwarded to PW Work Order Desk 253-967-3113 at least ten working days prior to the scheduled shut off.

Chapter 9 Exemptions

9-1. Exemptions

Exemptions to this policy will be approved by the Joint Base Commander (JBC). The JBC delegates approval of exemption requests to the Director of Public Works. The Director (PW) will validate waiver requests and forwards recommendation to JBC. Any appeal of the Director's decision will be forwarded to JBC by the unit/organization. To request for exemptions, 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.).
- c. Refer to related JBLM Policies 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 13423

Strengthening Federal Environmental, Energy & Transportation Management, 26 January 2007

Executive Order 13514

Federal Leadership in Environmental, Energy & Economic Performance, 5 October 2009

Executive Order 13693

Planning for Federal Sustainability in the Next Decade, 19 March 2015

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) FY 2013
Budget Guidance**

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.htm/>).

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.htm/>).

This section contains no entries.

Appendix B Guidelines for Implementing an Energy Conservation Program

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																																

Figure B-1: Example Building Energy Monitor Checklist

Energy Conservation In Office Space

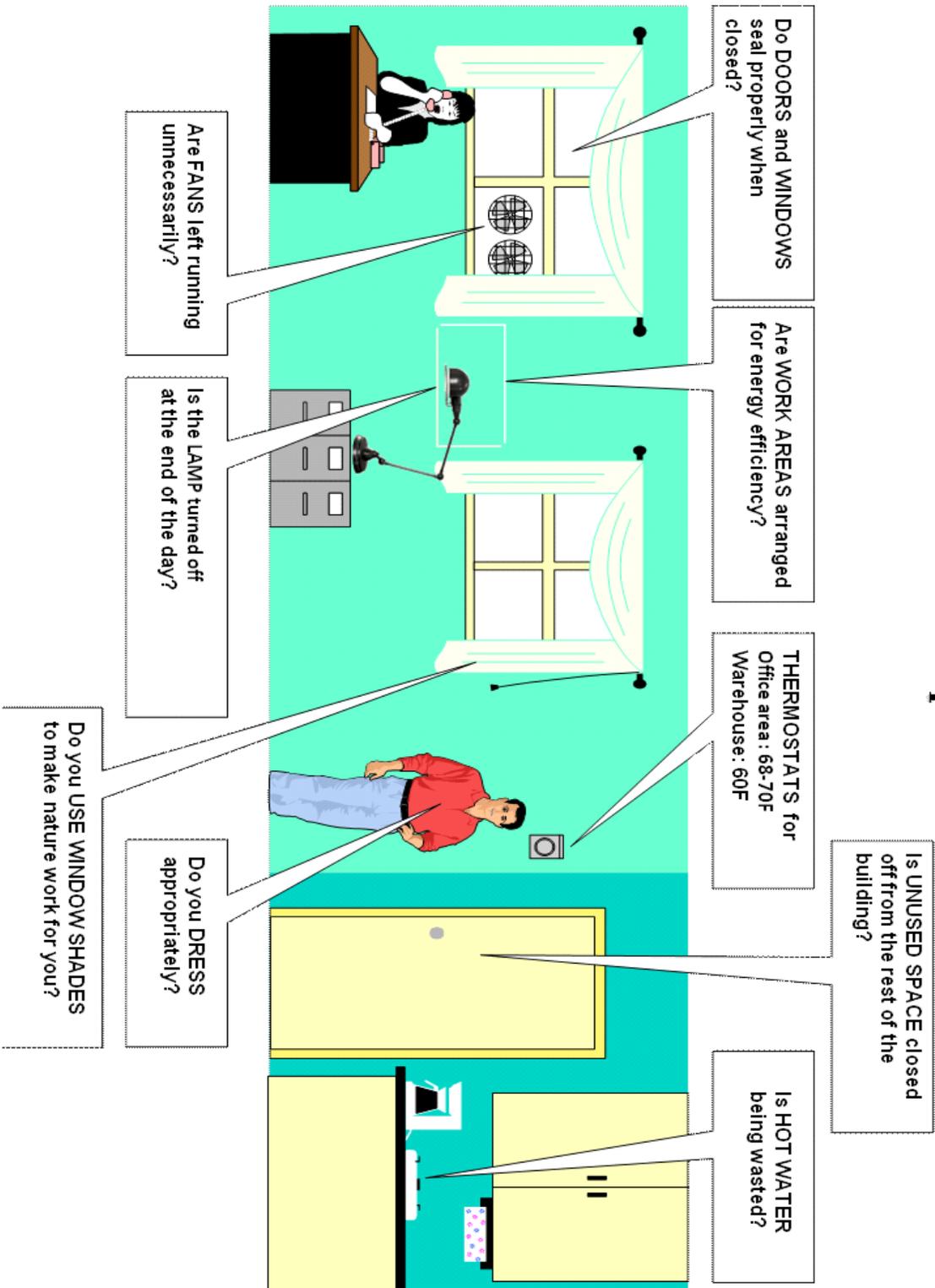


Figure B-2: Energy Conservation in the Office Space

**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.

- a.* All interior lights in unoccupied areas are turned off.
- b.* Exterior lights are turned off during daylight hours.
- c.* All electronic equipment is turned off when not in use.
- d.* Low flow shower heads and faucets aerators are installed.
- e.* Plumbing fixtures are not leaking.
- f.* Windows and doors are closed when building heat is on.
- g.* Windows and doors are properly weather-stripped and caulked.
- h.* Space heaters are not used without written approval from immediate supervisor or Director of PW.

Appendix F Electricity Use Instructions

a. 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 .

b. 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.

c. Interior night-lights will be kept to an absolute minimum consistent with safety and will generally be limited to hallways and stairways.

d. During daylight hours, lights will be switched off in all unoccupied rooms as soon as the room is vacated. Even energy efficient fluorescent lighting will be switched off when the room is vacated, regardless of the expected duration of vacancy.

e. 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 fluorescent 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.

f. Maximum light levels will not exceed facility-installed capacity unless written permission is granted by the JB Commander. The amount of light required above the maximum may be limited by the design capacity of the installed wiring.

g. Below are standards of luminance levels for various spaces and activities measured in Foot Candle (FC):

(1) To determine lighting levels in your work area contact the PW Energy Office for assistance (253-966-1772 or 966-9011).

(2) Remove all incandescent bulbs (A19 style and other varieties) and replace with high efficiency fluorescents bulbs or LED lamps.

(3) 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.

(4) 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.

h. To determine lighting levels in your work area contact the PW Energy Office for assistance (253-966-1772 or 966-9011).

i. Remove all incandescent bulbs (A19 style and other varieties) and replace with high efficiency fluorescents bulbs or LED lamps.

j. 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.

k. 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

GAL

Gallon

HVAC

Heating, ventilating, and air conditioning

KW

Kilo Watt

KWH

Kilo Watt 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."

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); According to Air Force Organization Structure (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>, <http://www.denix.osd.mil/spp/>, and https://www.whitehouse.gov/omb/procurement_index_green/ 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