FH REG 420-9

FACILITIES ENGINEERING

ENERGY CONSERVATION PROGRAM

HEADQUARTERS
III CORPS AND FORT HOOD

24 October 2007

DEPARTMENT OF THE ARMY ***III CORPS & FH REG 420-9**
HEADQUARTERS, III CORPS AND FORT HOOD
FORT HOOD, TEXAS 76544-5016
24 October 2007

Facilities Engineering

Energy Conservation Program

History. This is an administrative revision. This supersedes III Corps and Fort Hood Regulation 420-9 dated 11 May 1992.

Summary. This regulation establishes the policy and procedures for the Energy Conservation Program at Fort Hood.

Applicability. This regulation applies to all units and activities assigned, attached, conducting training, or residing on Fort Hood as tenants; contractor activities on Fort Hood and all organizations with leases using Fort Hood utilities; persons using Fort Hood utilities; off-post facilities; and other areas Fort Hood operates.

Supplementation. The Directorate of Public Works (DPW) prohibits supplementation of this regulation without prior approval.

Suggested Improvements. The proponent of this regulation is the DPW. Send comments and suggested improvements to: Commander, III Corps and Fort Hood, ATTN: IMSW-HOD-PWE, Fort Hood, Texas 76544-5016.

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OVERVIEW

1

Purpose

This regulation prescribes policies, assigns responsibilities, and establishes procedures for the Energy Conservation Program at Fort Hood.

1a

References

Appendix A lists required and related references.

1b

Abbreviations and terms

The glossary explains abbreviations and terms used in this regulation.

1c

Summary of change

Specifically, this revision dated 24 October 2007 –

- Updates water temperature from 94 degrees Fahrenheit (34 degrees Celsius) to 110 degrees Fahrenheit (43 degrees Celsius).
- Updates Army and Air Force Exchange Service (AAFES) reference to Exchange Operation Procedure (EOP) 36-1.
- Adds statement to install utility metering equipment in paragraph 3d.
- Adds statement that screw base compact fluorescent lamp (CFL) shall be used in lieu of screw base incandescent lamps in paragraph 6a.
- Inserts the requirement of metering air conditioning chillers performance energy, kilowatt (KW) and tons of refrigeration (TR) in paragraph 7i.

1d

Guidelines

Effective energy management is a culmination of:

- Common sense.
- Imagination.
- Implementing innovative programs.

Energy awareness programs are required to achieve significant energy conservation and reduce energy consumption per Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management). Energy consumption is one of Fort Hood's significant environmental aspects under its environmental management system (EMS) and objectives and targets exist under the Fort Hood sustainability strategic plan to reduce energy consumption, and in conformance with the Fort Hood Environmental Policy. It is the responsibility of every Soldier, civilian, contractor, and tenant to adhere to this regulation.

1e

RESPONSIBILITIES

2

Commanders, Directors, and activity chiefs

Commanders, Directors, and activity chiefs shall:

- Include energy management during staff and command inspection team visits per Army Regulation (AR) 1-201 (Army Inspection Policy).
- Actively promote command and community energy awareness and reduce consumption per Executive Order 13423.
- Develop, implement, maintain, and communicate command and unit energy conservation programs.
- Commanders shall appoint an energy conservation officer (ECO) and create orders, in writing, at every level of command down to the company level.

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Commanders, Directors, and activity chiefs (continued)

- Directorates shall appoint an ECO down to division level. Contractors and tenants shall appoint and ECO for their organization.

Note: ECOs may be commissioned officers, warrant officers, noncommissioned officers, sergeant first class or above, or civilians in a managerial position case of non-military, contractor, or tenant activities. In cases where ECOs are responsible for multiple facilities, organizations shall appoint and train an assistant building energy monitor (BEM).

- The ECO rosters and orders shall be updated annually or upon permanent change of station, termination, or transfer of civilian personnel.

- Instruct subordinates and act as the example for energy consumption and the reduction of consumption while maintaining the ability to meet mission requirements.

- Develop, publicize, communicate, and implement policies that achieve economical use of electrical appliances.

- Ensure all exterior lights are turned on and off at a reasonable time, optimizing use of daylight during daylight hours.

- Identify Direcorate of Public Works (DPW)-controlled high voltage equipment whose operation can be limited during peak electrical demand periods.

- Use incentive awards to promote and recognize excellent performance in energy conservation.

Directorate of Public Works (DPW)

DPW shall:

- Appoint the Fort Hood energy coordinator (FHEC).
- Provide:
  - Training.
  - Guidance.
  - Goals, targets, and metrics.
- Consider economics and benefits to incorporate the latest technology in energy conservation procedures and materials in the design of new facilities and renovation projects.
- Consider sustainability and EMS objectives and targets during all phases of development and design, as well as new technology on the installation.
- Conduct scheduled surveys of energy conservation practices at units, directorates, and activities.
- Conduct assessments and inquiries and work together with the environmental compliance assessment team when circumstances warrant immediate correction. Some incidences are, but are <u>not</u> limited to:
  - Exterior lights being left on during daylight hours.
  - Windows and doors open while facilities are being heated or air conditioned.
  - Misuse, and violation of the installation water conservation plan is occurring.

2b

Energy conservation officers (ECOs) and building energy monitors (BEMs)

ECOs and their appointed assistant BEMs shall:

- Design, document, and implement an energy conservation program for their organization.
- Advise Commanders, activity chiefs, and managers on the requirements of this regulation.
- Maintain all documentation and publications to provide a comprehensive source of technical information for energy conservation, including all Department of the Army (DA) pamphlets, regulations, plans, standard operating procedures (SOPs), and the DA BEM Handbook (Department of the Army Building Energy Monitor's Handbook). To acquire the most recent publications, contact the DPW Environmental Division (see appendix D for telephone numbers).
- Maintain current and accurate SOPs that contain, but are <u>not</u> limited to the following:
  - Specific responsibilities for energy conservation in the organization.
  - Outline policies unique to the facility equipment used or controlled by the organization.
  - The plan for managing the organization energy conservation program.
- Conduct regular facility inspections using Fort Hood (FH) Form 1073 (Checklist for Good Conservation of Utilities).
- Identify user-controlled high voltage (greater than 120 volts) electrical equipment in their facilities using FH Form 1073.

(continued on next page)

Energy conservation officers (ECOs) and building energy monitors (BEMs) (continued)

- Document and publicize energy conservation requirements, including displaying DA and FH posters on bulletin boards and light switches.
- Conduct training on the Energy Conservation Program.

2c

Public affairs officers (PAOs)

Public affairs officers (PAOs) will:

- Provide and maintain a single point of contact (POC) to expedite staff actions on energy matters.
- Provide FHEC with the POCs:
  - Name.
  - Location.
  - Telephone number.
  - Email.
- Publish information concerning energy related topics through the Fort Hood media network.

2d

Family housing occupants

Family housing occupants shall:

- Comply with the policies and procedures discussed in this regulation.
- Practice energy conservation the same as a prudent homeowner, who is responsible for paying the utility bills.

2e

POLICY

3

Energy conservation

The energy conservation program does not impair:

- Mission capability.
- Combat readiness.
- Deployment/Re-deployment ability .
- Training.
- Health or safety.
- Construction projects.

The Energy Conservation Program shall be considered when planning and executing military operations and quality of life functions.

Energy resources are intensively monitored and managed. Decisions about energy conservation are based on sound economic analysis and common sense to manage our natural resources in the most cost effective and practical manner.

Energy efficiency and availability is a factor in the decision making process and is stressed in the design, development, procurement, operation of equipment weapon systems, and facilities.

The Surgeon General develops criteria for the Army medical department's energy policies governing lighting, humidity, heating, and cooling.

Energy conservation awareness shall continuously be promoted at all levels to eliminate energy waste and reduce consumption.

3a

Electrical demand reduction

Because of the installation's rapid growth, a greater demand is placed on utility systems and the resources to pay for them.

Electrical use shall be limited, during the peak electrical demand (PED) period.

(continued on next page)

Electrical demand reduction (continued)

Some practical ways to achieve reduction are:

- Use clothes washers and dryers before 1300 or after 1600.
- Perform electricity intensive operations outside the PED time frame whenever possible.
- Adhere to time restriction for watering lawns as described in the Fort Hood water conservation plan.

3b

Exceptions to policy

Activities or units may request an exception to policy when unusual circumstances warrant exception in order to perform the installation mission.

Activities or units requesting an exception to policy must send a memorandum requesting an exception to policy to DPW, ATTN: Environmental Division (appendix B contains a sample). In the memorandum include organization name, address, POC with phone number and email, and justification for request. Upon receipt of request, the DPW, Environmental Division staff will conduct a field survey to determine the disposition of request. Once approved, facilities are permanently placed on file pending annual review by DPW, Environmental Division.

Note: If a change in mission is noted, DPW notifies the user of pending removal from the file list. The user will have 14 working days to reply with justification. Once removed, a facility must resubmit a request for an exception to policy.

3c

Facilities and building management

Energy consumption in facilities shall be reduced through low to no cost action using common sense best management practices (BMP) such as:

- Establish an organizational energy SOP.

(continued on next page)

Facilities and building management (continued)

- Control heating and cooling systems by some form of utility monitoring and control system (UMCS) such as:
  - Frequency modulated controls.
  - Timers.
  - Other programmable devices.
  - Installation-wide UMCS.
- Adhere to proper adjustment of thermostat and other controls as shown in appendix E.
- Remove lamps from fixtures in the event of excess lighting.
- Close doors and windows to prevent loss of energy required for heating and cooling.
- Ensure the appointment and training of ECOs and BEMs.
- Install utility metering equipment.

3d

Army and Air Force Exchange Service (AAFES)

AAFES must follow the policies and procedures prescribed by EOP 36-1.

3e

Energy conservation surveys

Organizations may request their facilities energy surveys or studies. Typical surveys are done for lighting, air conditioning, and heating; however, any energy related survey may be required. To request an energy survey, submit a memorandum for specific survey to DPW, ATTN: Environmental Division.

3f

Energy hot-line

Everyone is encouraged to use the Environmental Division energy hot-line (see appendix D for telephone numbers) to suggest:

- Energy savings ideas.
- Report energy waste.
- Comment on any topic related to the DPW Energy Conservation Program.

The hot-line is monitored from 0730 to 1630 Monday through Friday, excluding holidays.

3g

AIR CONDITIONING AND HEATING PROCEDURES

4

Air vents, ducts, and returns

Obstructions (such as furniture or drapes) will not block vents, air returns, and air ducts.

Blockage prevents efficient operation of the circulation system which increases energy consumption.

4a

Windows and doors

Keep windows closed and open exterior doors as little as possible when the air conditioning or heating system is in use.

4b

Correcting deficiencies

Correct energy wasting deficiencies such as defective weather stripping, broken windows, inoperative door closers, and defective thermostats.

If the unit self-help team cannot correct deficiencies, request assistance from DPW work reception (see appendix D for telephone numbers).

Family housing occupants must request repairs through the maintenance contractor (see appendix D for telephone numbers).

4c

Filters

Inspect filters at a minimum of once a month, replacing disposable filters at least every 90 days.

Clean permanent (nondisposable) filters according to instructions on the equipment.

- This task should be performed by the unit self-help team according to FH Regulation (REG) 420-27 (Care, Maintenance, and Alterations of Facilities), paragraph 3d.

- The maintenance contractor performs his task in Family housing quarters.

4d

Thermostats

Thermostat settings must comply with the temperature requirements prescribed in appendix E (also see appendix F).

At the end of each working day in work areas where the thermostat is readily accessible, the occupant turns off the air conditioning or sets the heating thermostat to 55 degrees Fahrenheit (12.8 degrees Celsius) or lower.

The same policy applies when any facility is expected to be unoccupied for more than 8 hours, unless damage to the facility or its contents would result.

Turn off air conditioning equipment which is <u>not</u> controlled by a thermostat when the outside temperature is lower than 78 degrees Fahrenheit (25.6 degrees Celsius).

Turn off heating equipment when the outside temperature is greater than 65 degrees Fahrenheit (18.3 degrees Celsius).

Do not locate heat generating appliances near thermostats.

- Operation of the heating or air conditioning equipment may be adversely affected by heat generated from the use of television sets, refrigerators, and other appliances.

4e

Temperature compliance

Energy consumed for heating and cooling space will be carefully controlled and monitored.

Appendix E illustrates the prescribed temperature ranges for various types of facilities.

All reasonable effort should be made to maintain temperatures that result in the least consumption of energy.

Appendix F illustrates the savings due to energy conservation.

If several occupied rooms are serviced by the same air duct system and temperature is controlled by a single thermostat, the lowest room space temperature determines compliance for heating and the highest room space temperature determines compliance for cooling.

4f

Thermal and solar gain

Keep draperies and blinds closed on the sunny side of the building during the cooling season and open on sunny days during the heating season.

Turn off unwarranted lights to lessen the load for air conditioning systems.

4g

Supplemental equipment

Portable space heaters are prohibited.

Electric space heaters may be permitted only when an exception to policy (see paragraph 3b above) is granted in writing by DPW.

The criteria in AR 420-54 (Air Conditioning and Refrigeration), chapters 1 through 5, govern requests for supplemental or new air conditioning equipment.

Space temperature in buildings where thermostats are not accessible to occupants is checked by the DPW, Environmental Division during surveys.

Discrepancies are reported to the DPW work reception per FH Reg 420-27, appendix A.

4h

WATER PROCEDURES

5

Routine Use Maintain faucets, valves, and bathroom fixtures in good repair. After each use, all faucets or valves must be closed. Water leaks from any source must be stopped promptly. Report leaks to the DPW work reception (see appendix D for telephone numbers). Pavement washing should be avoided (shovel or sweep away debris).

5a

Hot water Use hot water only when the task requires it. Administrative buildings with shower facilities are authorized hot water for those facilities. Water temperature will be regulated as prescribed in appendix E.

5b

Vehicle washing All military vehicles that require anything more than a superficial rinsing or maintenance-related cleaning are to be washed at a tactical vehicle wash facility (TVWF). Residents of Fort Hood may wash privately owned vehicles (POVs) at their home, minimizing water use and waste. All other commercial or government owned vehicles must be washed at a properly constructed car wash or wash rack. Charity or fund raising car wash events are reviewed on a case-by-case basis.

5c

Landscape irrigation Lawn watering should be kept to a minimum. Consider the demand reduction policy prior to watering lawns. Lawn sprinklers should not be left operating unsupervised or in one spot as to cause excessive saturation or wasteful runoff. DPW water conservation policy is distributed by the DPW, Environmental Division concerning water usage during the summer.

5d

LIGHTING PROCEDURES

6

Conservation Turn off lights in unoccupied areas and use only the lighting essential to a particular endeavor. Exterior lighting must be “off” during daylight hours and must be reduced to the minimum essential for safety and security purposes as required by Field manual (FM) 19-30 (Physical

(continued on next page)

Conservation (continued)

Security), chapter 6. Reduce the wattage of lighting whenever possible, particularly in seldom used areas such as storage areas and utility rooms.

Lighting should be reduced by disconnecting nonessential lamps, ballasts, or fixtures.

The replacement of low-efficiency lamps with high-efficiency lamps should be implemented. Replace fluorescent tubes which are blackened on the ends (blackened tubes emit half the light of a new tube). Screw base CFL compact fluorescent lamps shall be used in lieu of screw base incandescent lamps.

Only DPW maintenance shops disassembles unneeded lighting fixtures or ballasts.

6a

Lighting athletic facilities

Manage the lighting systems at indoor or outdoor athletic facilities to prevent waste of electricity. Turn off unnecessary lighting during periods when these facilities are unoccupied and when daylight is adequate. Lighting at outdoor athletic facilities should not be used for normal security or crime prevention purposes.

6b

Illumination intensities

The general illumination intensity requirements are prescribed in appendix G. DPW will assist in determining the required intensities to provide a safe and productive environment.

6c

Ornamental lighting

Reasonable use of inside and outside electrical ornamental lighting is authorized during the Christmas season. Lighting is only authorized in Family housing areas and public assembly areas designated by the Garrison Commander to exhibit the spirit of the season. Lighting arrangements should be kept to a reasonable minimum. All ornamental lighting must be turned off after 2300 and during daylight hours. To avoid the possibility of a fire, lighting should be carefully inspected, controlled, and monitored. The Christmas season is defined as the period between 1 December through 1 January.

6d

UTILITY METERING

7

Individual buildings

Individual building metering is the best method to evaluate building modifications, monitor energy consumption, and identify peak energy characteristics.

This information allows the DPW, Environmental Division to establish normal energy use patterns (baselines) for a particular building type. These baselines are used to validate studies by comparing actual energy savings (resulting from conservation retrofit measures) with predicted energy savings.

7a

Metering data

Metering data is disseminated among DPW maintenance shops to help identify equipment deficiencies. Metering data can also be used to instill competition within organizations and among units. This will help increase the facility users awareness of the energy they consume, which will further assist efforts to reduce energy consumption.

7b

Construction projects

Utility meters shall be incorporated into all major new construction and retrofit projects per Installation Designed Guide (IDG) 2005.

7c

Metering criteria

Activities who reimburse Fort Hood for utilities will install meters in new facilities and when existing, service lines are upgraded. For facilities serving activities which do not reimburse Fort Hood for utilities, metering devices will be installed in certain instances. All the facilities listed in appendix C will be considered for metering devices. Criteria in paragraphs 7e, 7f, 7g, and 7i below shall be used to determine which meters are required. If an electrical meter is deemed appropriate, a gas meter should be given strong consideration.

7d

Electric metering criteria

Electric metering is required when total electrical demand is greater than or equal to 48 kilowatts and estimated peak demand is greater than or equal to 25 kilowatts.

7e

Natural gas metering criteria

Natural gas metering is required when the total design flow rate is greater than 100 cubic feet (2.8 cubic meters) per hour and design heating load is greater than 25 British thermal unit/square feet (BTU/SF) (293,056 Joules/square meter).

7f

Water metering criteria

Water metering is required when a design load is greater than or equal to 3 million gallons (11.34 million liters) a year.

7g

Remote metering

Single point or multiple system telemetry (remote) metering should be considered for installation in lieu of standard metering devices. Remote metering provides rapid and accurate meter reading with little or no additional manpower required to locate, record, and log utility readings.

Remote metering allows hourly meter readings which can be used to establish a facility's daily operation energy profile. This profile can be used to determine low or no cost energy consumption reduction opportunities for potential energy savings.

7h

Chiller metering

Provide an electrical KW meter and an appropriately sized chilled water flow meter for chillers for 50 TR or larger capacity. The readings of KW and /or TR (chilled water flow) shall be integrated into the UMCS system for monitoring and comparison of chiller cooling efficiency.

7i

ELECTRICAL APPLIANCES

8

Safety

All electrical appliances are subject to applicable safety regulations and FH Reg 420-1 (Fire Regulations), paragraph 2-22. Limit the use of electrical appliances for ornamental purposes such as aquariums, electric mobiles, disco lights.

(continued on next page)

Safety (continued)

- Use of specific ornamental appliances in areas of public assembly (i.e., clubs, day rooms, libraries) may be authorized by Commanders, Directors, and activity chiefs.

8a

Washers and dryers

Users are encouraged to use cold or warm water instead of hot water for all laundry except white garments and heavily soiled fabrics. Washers and dryers will not be overloaded or underloaded. Clear lint traps before drying each load. Electric washers and dryers will not be operated during the PED period.

8b

Refrigeration

Do not keep refrigerator or freezer doors open longer than necessary. worn or damaged gaskets must be replaced. Defrost refrigerator freezers regularly (frost over 1/4 inch (10 centimeters) thick acts as an insulator causing the refrigerator to work harder). Adjust the refrigerator thermostat to the minimum setting necessary, a mid-dial setting is usually adequate. Disconnect unnecessary or unused refrigeration equipment.

8c

FAMILY HOUSING

9

Occupants

The use of kitchen ranges to supplement the heating system is prohibited.

Occupants departing their residence on vacations or other periods of absence longer than 8 hours will set thermostats to 55 degrees Fahrenheit (14 degrees Celsius) for heating or 88 degrees (Fahrenheit (31 degrees Celsius) for air conditioning. If no damage to the quarters or its contents will occur, further measures can be taken such as turning off the heating and air conditioning systems, all electrical appliances, refrigeration equipment whenever prudent, and all interior lighting.

9a

TRAINING

10

Energy training

Energy training is provided by DPW, Environmental Division.

Training consists of establishing energy conservation programs, identifying energy conservation opportunities, and discussing energy consumption and trends. Requests for training should be submitted by calling the DPW, Environmental Division energy hot-line (see appendix D for telephone numbers) or by a memorandum to DPW, ATTN: Environmental Division.

10a

Building energy manager

ECOs and BEMs should be familiar with specific methods and training available to identify and implement good energy conservation practices.

10b

AREAS OF SPECIAL EMPHASIS

11

Publicity

Commanders, Directors, and activity chiefs should actively promote energy conservation. Bulletin boards, posters, and signs and regular training are ways to increase energy conservation awareness. Contact DPW, Energy Office for training materials.

11a

Temperature measurement techniques

Space temperature compliance is determined by the average of thermometer readings taken at the center of a room, 2 feet (0.0609 meters) from each wall, 4 to 5 feet (1.2 to 1.5 meters) above the floor.

Hot water temperature compliance is determined by a single thermometer reading taken during normal hot water use from a tap at an average distance from the hot water tank.

11b

Commonly used areas

Extraordinary management of utilities is required at athletic fields and courts, chapels, dining facilities, physical fitness centers, showering areas, laundry rooms, motor pools, and swimming pools.

11c

Heating to air conditioning transition

Since the heating and air conditioning transition periods require DPW to employ special crews for several weeks, the establishment of seasonal transition dates is necessary to efficiently manage resources.

- Heating is turned off beginning the third Monday of March.
- Air conditioning is turned on beginning the first Monday of May.
- Air conditioning is turned off beginning the second Monday of October.
- Heating is turned on beginning the first Monday of November.

Occupants may experience some temporary discomfort resulting from abnormal weather during the transition periods.

11d

Minimizing peak electrical demand (PED)

PED is the maximum amount of power demand at each of the four electrical substations located on Fort Hood. PED occurs once during the year, usually around 1530 on a hot summer day when most air conditioners are running. Reduction of PED is one of the most profitable conservation measures because it affects Fort Hood utility costs for the entire year. The PED period occurs from 1 May through 30 September between the hours of 1300 to 1700.

The operation of high voltage (greater than 120 volts) electrical equipment which should be routinely avoided during all or some of the PED period is prescribed on FH Form 1073 by the ECOs. However, mission readiness and training are the installation's primary concern and will <u>not</u> be compromised. It is extremely important to intensify efforts to eliminate energy waste and conserve electricity during PED.

11e

STORING AND DISPENSING PROCEDURES FOR PETROLEUM, OIL, AND LUBRICANTS (POL) CONTAINERS

12

Mobility energy

Mobility energy use includes all fuels used for transportation, research and development, training, and operational readiness on land, sea, and air. Effective energy conservation practices should be incorporated into all phases of training which use mobility fuels. The management plans herein are designed to reduce energy consumption of mobility fuels while maintaining readiness. If conservation programs should impact training readiness, the conflict is resolved outside this regulation. Training plans should consider energy conservation at all levels of the organization.

12a

Storage

Store packaged petroleum products according to FM 10-69 (Petroleum Supply Point Equipment and Operations), chapter 16. Close partially full petroleum, oil, and lubricants (POL) product containers tightly at all openings to avoid contamination and spillage.

Grease containers should be tightly closed immediately after each dispensing to prevent contamination. POL cans of 1 gallon (4.55 liters) or less cannot be tightly closed because of the need to puncture the container in order to dispense the product. Puncturing (creating air holes) POL containers, which are provided with caps, bung plugs, and so forth, is prohibited because it causes undue waste by allowing product contamination and complicates the required turn-in of empty containers for recycle. Prevent fuel contamination regardless of use or storage method. Dispose of or use all contaminated fuels in accordance with FH Reg 200-1 (Environment and Natural Resources).

12b

Dispensing

Basic loads are rotated by exchanging older products with fresher ones from the operational stock. Using the oldest product first prevents loss due to shelf life expiration or container deterioration. Take necessary caution to prevent back surges and overflows when dispensing or transferring fuel.

12c

MAINTENANCE

13

Equipment maintenance

Intercept fuel by using funnels or drip catchers whenever equipment maintenance procedures generate waste, excess, or contaminated fuel. Store fuel in suitable containers until proper disposition can be made. Prevent fuel leaks through proper maintenance and careful operation of equipment. When leaks do occur, take prompt corrective action (turn off pumps and valves until leaking stops).

13a

Vehicle maintenance

To ensure efficient fuel consumption, perform all scheduled maintenance including replacing all filters (air, fuel, and oil) and tuning vehicles according to their technical manuals (TMs). To confirm fuel economy, check vehicle logbook when refueling and calculate fuel consumption per mile or hour. When fuel consumption increases per mile or hour, schedule the vehicle for a maintenance check.

13b

TRANSPORTATION

14

Efficient use of vehicles

Schedule or arrange transportation to and from administrative functions to minimize vehicle usage. Promote car pools within your unit or activity. Select vehicles according to the load they will carry (i.e., a heavy truck should not be used when a sedan could do the job). Do not leave the engine idling while a vehicle is being loaded, unloaded, or waiting. Use military vehicles for official purposes only.

Use available alternative fuels to reduce fleet petroleum consumption where allowed by Original Equipment Manufacturers (OEM) to meet the goals of Energy Policy Act (EPACT) 2005 and Executive Order 13423.

Whenever possible, eliminate trips if results can be achieved by telephone. Conduct meetings using the conference features of the telephone system.

14a

Driving

When driving observe speed limits and accelerate smoothly and moderately. Maintain a steady speed as much as possible. Try to avoid stop-and-go traffic. Plan routes and adjust speed to avoid unnecessary accelerations and decelerations.

14b

Tactical and nontactical vehicles

Use nontactical vehicles to the maximum extent possible for essential administrative missions. Limit use of tactical vehicles only for essential tasks.

14c

ENERGY CONSERVATION IN TRAINING

15

Fuel conservation actions

During ground training:

- Limit operational training involving aircraft and other fuel consuming equipment without affecting operational readiness.
- Limit weapons and equipment demonstration to the absolute minimum required for training.
- Modify training plans to eliminate use of nonessential motorized equipment.
- Limit field training exercises and increase command post exercises consistent with readiness requirements.
- Maximize foot movement to training and administrative areas.
- Leave unit equipment on-site during field training rather than returning equipment to post each day.
- Extend the length of required field training exercises to maximize use of equipment once in place.
- Increase the use of classroom instructional training aids in lieu of hands-on training with motorized equipment.

(continued on next page)

Fuel conservation actions (continued)

- Ensure that equipment operators are aware of energy conservation practices during operation and maintenance of their equipment.
- Optimize the use of simulators and miniranges by incorporating their uses into the units training program.
- Keep energy intensive exercises to the minimum required to maintain combat readiness.

15a

Aviation training

Achieve tactical aircrew training manual (TATM) requirements using minimal fuel. Accomplish TATM requirements of operational aviators in conjunction with administrative and operational missions to the maximum extent possible. Reduce aviator transition training to the minimum required to meet operational requirements. Minimize turnaround times during airmobile training by using the most direct route and nearest training areas. Maximize use of synthetic flight trainers and simulators.

15b

Appendix A
References

Section I. Required Publications

EOP 36-1 (Cited in para 3e)
Exchange Operation Procedure

FH Reg 200-1 (Cited in para 12b)
Environment and Natural Resources

FH Reg 420-1 (Cited in para 8a)
Fire and Emergency Services

FH Reg 420-27 (Cited in para 4d and 4h)
Care, Maintenance, and Alterations of Facilities

FM 10-69 (Cited in para 12b)
Petroleum Supply Point Equipment and Operations

IDG 2005 (Cited in para 7c)
Fort Hood Installation Design Guide 2005

Section II. Related Publications

AR 1-201
Army Inspection Policy

AR 11-27
Army Energy Program

AR 30-1
The Army Food Service Program

AR 420-49
Heating, Energy Selection and Fuel Storage, Distribution, and Dispensing Systems

AR 420-54
Air Conditioning and Refrigeration

DA BEM Handbook
Department of the Army Building Energy Monitor's Handbook

EPACT 2005
Energy Policy Act 2005

Executive Order 13423
Strengthening Federal Environmental, Energy, and Transportation Management

FM 19-30
Physical Security

FORSCOM Pam 11-3
Energy Program Guide (Draft)

FORSCOM Pam 11-27
FORSCOM Energy Resources Management Plan (Draft)

IES Lighting Handbook
Illumination Engineering Society Lighting Handbook

Section III. Prescribed Forms

This section not used.

Section IV. Referenced Forms

FH Form 1073
Checklist for Good Conservation of Utilities

FH Form 1853
Distribution Scheme

Appendix B
Sample Memorandum

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT HO
BUILDING 1001 ROOM W321
FORT HOOD, TEXAS 76544-500

IMWE-HOD-PWE **Date**

MEMORANDUM FOR Directorate of Public Works, ATTN: Environmental Division

SUBJECT: Request for Exception to Policy for Climatic Control

1. Request Climatic Control of air-conditioning in building 35001 and 35002. (95th Maintenance Company, 1st Cavalry Division.)

2. Justification is the requirement that temperature control must be maintained for calibration standards as per TB 750-25, paragraph 4-4, page 4-1 (between 68-74 degrees Fahrenheit).

3. POC: CW3 Condition/SSG Weather, 287-5677. Email frank.weather@us.army.mil

ERNIE G. SAVER
MAJ, OD
Chief, Operation Division

Figure B-1. Sample Memorandum

Appendix C
Facility Type Table

Table C-1. Facility Type Table

Facility Type	CAT Code Description
Dining halls	72210 - Enlisted personnel dine
Barracks with admin and supply	72112 - Enlisted barracks with admin and supply
Barracks with dining, admin, and supply	72113 - Enlisted barracks with dining, admin, and supply
Administration and supply	72330 - Administration and supply
Brigade HQ	14182 - Regiment HQ building
Barracks with dining	72110 - Enlisted barracks with dining
Barracks without dining	72111 - Enlisted barracks without dining
Physical fitness center	74028 - Physical fitness center
Automated data processing	61031 - ADP building
Medical facility	54010 - Dental clinic
Instrument trainer	17110 - AC trainer building
Flight simulator	17112 - Flight simulator building
Cold storage	43210 - Cold storage warehouse

Legend:

AC – Air Conditioning
Admin – Administration
ADP – Automatic Data Processing
CAT – Category
HQ – Headquarters

Note:
All military buildings shall be metered per EPACT 2005.

Appendix D
Telephone Numbers

Table D-1. Telephone numbers

Office	Telephone number
DPW Environmental Division	254-287-7283
DPW Work Reception	254-287-2113
Energy Hot-Line	254-287-SAVE
Maintenance Contractor	254-532-3133

Legend:

DPW – Directorate of Public Works

Appendix E
Prescribed Temperatures (Fahrenheit)

Table E-1. Prescribed Temperatures (Fahrenheit)

Area [1]	Heating Temp Range[2]	Cooling Temp Range[2]	Hot Water Temp[1 and 3]
Family quarters	65– 70 (18.3 – 21.1)	75 – 80 (23.9 – 26.7)	110 (43.3)
Troop living	65 – 70 (18.3 – 21.1)	75 – 80 (23.9 – 26.7)	110 (43.3)
Administrative areas	65 – 70 (18.3 – 21.1)	75 – 80 (23.9 – 2-26.7)	Administrative shower facilities 110 (43.3)
Dining facility	65 – 70 (18.3 – 21.1)	75 – 80 (23.9 – 26.7)	General use – 140 (60) Prewash – 160 (71.1) Final rinse – 180 (82.2)
Recreation	65 – 70 (18.3 – 21.1)	75 – 80 (23.9 – 26.7	96 (35.6)
Motor pools	50 – 65 (10.0 – 15.6)	N/A	N/A
Dental clinics	70 – 75 (21.1 – 23.9)	70 – 75 (21.1 – 23.9)	140 (60)
Medical clinics	70 – 75 (21.1-23.9)	70 – 75 (21.1 – 23.9)	140 (60)
Child care	70 – 75 (21.1 – 23.9)	70 – 75 (21.1 – 23.9)	95 (35.6)
Operating-delivery	70 – 75 (21.1 – 23.9)	65 – 70 (18.3 – 21.1)	140 (60)
Intensive care	75 – 80 (23.9 – 26.7)	70 – 75 (21.1 – 23.9)	140 (60)
Paint shop	75 – 80 (23.9 – 26.7)	N/A	N/A
Warehouse	55 – 60 (12.8 – 15.6)	N/A	N/A
Automated facility	PMS	PMS	N/A

Table E-1. Prescribed Temperatures (Fahrenheit) (continued)

Legend:

N/A – Not applicable
PMS – Per manufacturer's specification (with DPW exception)
Temp – (temperature)

Note:
[1] Not to exceed without DPW exception.
[2] Space temperature.
[3] Temperature at the destination.

Appendix F
Relation of Space Temperature to Energy Consumption (Fahrenheit)

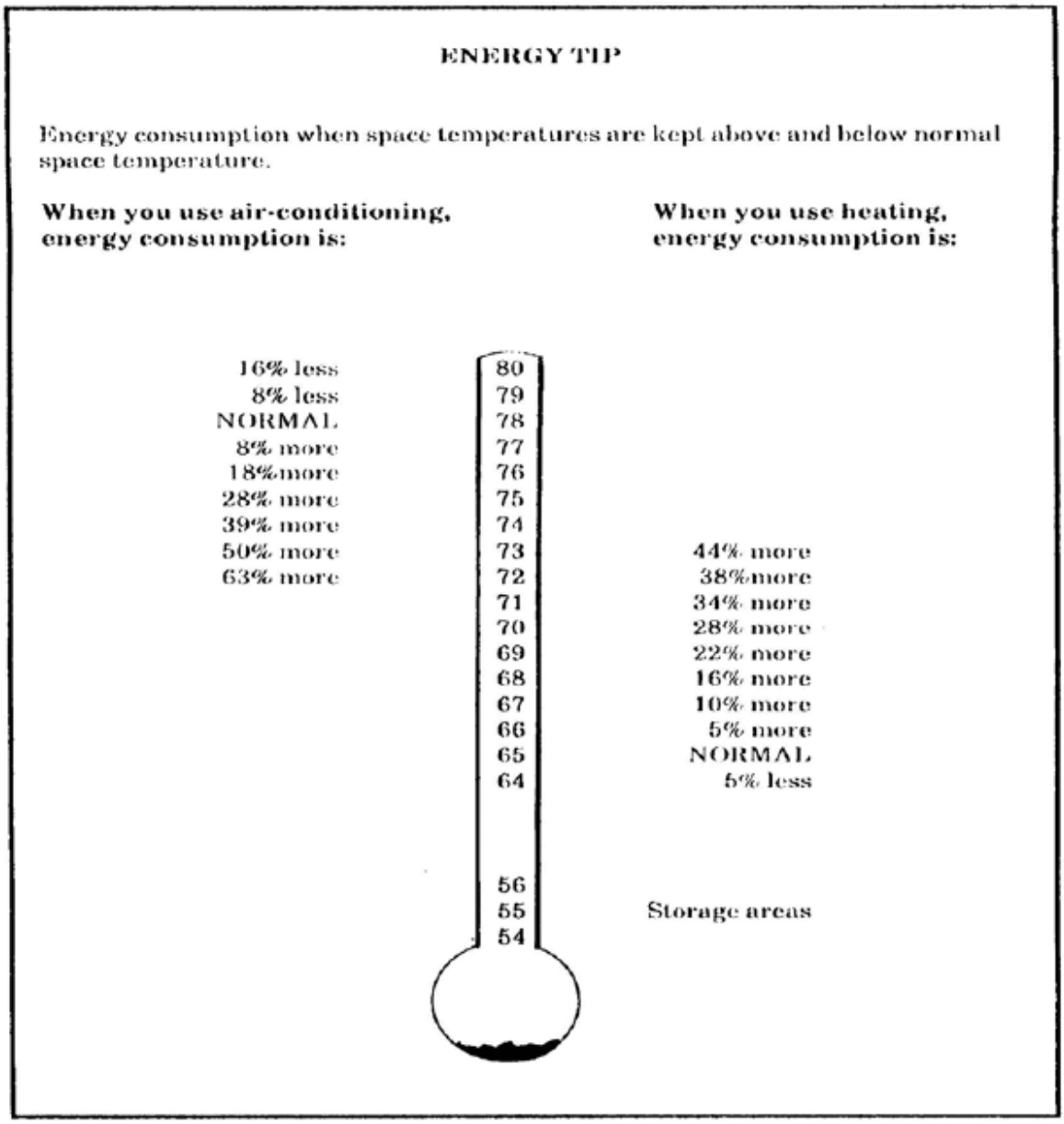

Figure F-1. Relation of Space Temperature to Energy Consumption (Fahrenheit)

Appendix G
Light Intensities for a Safe and Productive Environment

Table G-1. Light Intensities for a Safe and Productive Environment

Area[1]	Foot Candles[2]
Family quarters	10-50
Work station (desk, table, drafting, etc.)	50
Conference room	30
Classroom	30-50
Warehouse	30
Nonworking areas (halls, corridors, etc.)	10
Troop living	30

Legend:

DPW – Directorate of Public Works
ETC – Et Cetera

Note:
[1] Lamp wattages will not exceed equipment manufacturer's specified rating.
[2] Not to exceed without DPW exception.

Glossary
Section I. Abbreviations

AAFES
Army and Air Force Exchange Service

ADMIN
Administration

AC
Air Conditioning

ADP
Automatic Data Processing

ATTN
Attention

BEM
Building Energy Monitor

BMP
Best Management Practices

BTU/SF
British Thermal Unit per Square Feet
CAT
Category

CFL
Compact Fluorscent Lamp

DA
Department of the Army

DPW
Directorate of Public Works

ECO
Energy Conservation Officer

EMS
Environmental Management System

EOP
Exchange Operation Procedure

ETC
Et Cetera

FH
Fort Hood

FHEC
Fort Hood Energy Coordinator

FM
Field Manual

HQ
Headquarters

IAW
In Accordance With

IDG
Installation Design Guide

IES
Illumination Engineering Society

FORSCOM
Forces Command

KW
Kilowatt

N/A
Not Applicable

OEM
Original Equipment Manufacturer

PAO
Public Affairs Officer

PED
Peak Electrical Demand

PMS
Per Manufacturer's Specification

POC
Point of Contact

POL
Petroleum, Oil, and Lubricants

POV
Privately Owned Vehicle

REG
Regulation

SOP
Standard Operating Procedure

TATM
Tactical Aircrew Training Manual

TEMP
Temperature

TM
Technical Manual

TR
Tons of Refrigeration

TVWF
Tactical Vehicle Wash Facility

UMCS
Utility Monitoring and Control System

Section II. Terms

Cooking appliance
Cooking appliance for the purpose of energy conservation is defined as any household device which consumes energy in the form of electricity or natural gas and used in the preparation of food (i.e., toasters, hot plates, and electric skillets).

Electrical appliance
Any device that uses electricity. Exempt from this definition are battery-operated devices and light fixtures.

Mobility energy
Fuels and lubricants used for operation of vehicles, aircraft, and other motorized equipment which are not part of a facility system.

Peak electrical demand (PED)
The time period in which the electrical peak demand may occur. This period is defined as 1 May through 30 September from 1300-1700 on weekdays.

Space temperature
The average temperature reading in a given area measured between 4 and 5 feet (1.2 and 1.5 meters) above the finished floor.

Utilities
Water, electricity, natural gas, and fuels consumed by the use of real property.

Utility meters
Meters used to record the consumption of utilities.