DEPARTMENT OF THE NAVY
UNITED STATES NAVAL ACADEMY
121 BLAKE ROAD
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USNA/ACCINST 4100.3B
15/PWD
19 September 1997

USNA/AAC INSTRUCTION 4100.3B

From: Superintendent

Subj: ENERGY MANAGEMENT PROGRAM

Ref: (a) OPNAVINST 4100.5D
(b) NAVFACINST 11300.37A (NOTAL)
(c) USNA/AACINST 11310.1A

Encl: (1) Energy Resources Conservation Guidelines
(2) Facility First Lieutenant Responsibilities

1. Purpose. To reinforce the policy, goals, and objectives of the Navy Energy Management Program as outlined in references (a) and (b), and to assign responsibilities for the implementation of the program within the Naval Academy (USNA)/Naval Station (NAVSTA), Annapolis, MD.

2. Cancellation. USNA Instruction 4100.3A. (R (D

3. Scope. Applicable to all military and civilian personnel employed at the USNA and NAVSTA, Annapolis, MD.

4. Background. Proper management and conservation of our energy resources is essential. Navy energy conservation goals have been established and published in references (a) and (b). This instruction reaffirms support of the program, emphasizing management attention, awareness, and participation by all USNA/NAVSTA personnel.

5. Objectives. The primary objectives of the Energy Management Program are as follows:

a. Encourage USNA/NAVSTA personnel's participation in identifying sources of inefficient usage of energy and in offering recommendations for improved equipment and/or procedures.

b. Maintain records, reports, and graphs of energy consumption to assist all concerned in implementing conservation.

c. Implement an inspection and maintenance program for correcting energy waste.

d. Implement energy conservation during the design process on all repairs, renovations, replacements, and new facilities projects, both in-house and outside Architect-Engineering Services contracts.

e. Establish long- and short-range programs for energy conservation.

f. Monitor the Energy Management Program to ensure that objectives and goals are met.

6. Goals. The following goals, established by reference (a), apply to the USNA. Fiscal Year (FY) 1985 (1 October 1984 to 30 September 1985) will be used as the baseline year for comparison.

a. Reduce actual energy consumption per thousand gross square feet by 30 percent by the end of FY 2005. (R

b. Reduce the estimated annual design energy usage per gross square foot by 1.5 percent per year for new buildings thereby achieving a 15 percent reduction for those buildings designed in FY 1995 compared with comparable buildings designed in FY 1985. (R

c. Increase the miles-per-gallon efficiency of administrative vehicles by 15 percent and increase the usage of alternative fuel vehicles when cost effective and practical. (R

7. Energy Management Program. The Energy Management Program will consist of the following sub-programs:

a. Energy Conservation Inspection Program. The Energy Branch, Energy and Utilities Division (EUD), Public Works Department (PWD), will conduct energy conservation inspections throughout all facilities and will initiate corrective action. Corrective action will be in the form of a service call or a work request. The PWD will be responsible for prompt action on the service calls and work requests; the Energy Conservation Committee (ECC) will be responsible for prompt correction of the recorded problems. The Energy Branch, EUD, will randomly select facilities and notify the First Lieutenants of the buildings for an inspection date. The corrective action will be recorded on the Energy Conservation Inspection Report (ECIR), and it will be sent to the First Lieutenant of each building and the ECC for reference. The ECC is established by the Energy

Management Program Manager. The members of the ECC are composed of the First Lieutenant of each building at the USNA and NAVSTA, Annapolis, MD. The function of the ECC is to monitor the energy usage and energy conservation program.

R) b. Lighting Program. Modernize and upgrade existing electrical lighting systems with high efficiency T-8 fluorescent tubes with solid state electronic ballasts and replace regular type incandescent lamps with high efficiency compact fluorescent lamps.

A) c. Shared Energy Savings (SES) Program. The SES program is a contracting method whereby a contractor incurs costs of implementing energy savings measures. It consists of the contractor making energy audits, acquiring and installing equipment, and training government personnel, at no cost to the government, in exchange for a share of any energy savings directly resulting from implementation of such measures during the term of the contract.

d. Energy Monitoring and Reporting Program. This program monitors total energy usage through reports submitted in accordance with the Defense Utility Energy Reporting System (DUERS) requirements in reference (b).

e. Building Modification Program. This program will use the Defense Business Operations Fund and special appropriations to improve the energy efficiency of existing buildings.

A) f. Training Program. Develop a training program for PWD essential personnel to enhance their existing skills and knowledge of the modern technologies and equipment to increase effectiveness, efficiency, and productive performance of essential duties. Provide building staff who are not involved in maintenance with some cross-training from the maintenance staff so the building staff members become additional eyes for recognizing potential system problems to assist the operations staff by monitoring energy use within each building.

A) g. Public Energy Awareness Program. Develop a Public Energy Awareness Program to highlight advanced technology and practices for energy efficiency and water conservation through (1) the display panels in various locations at the USNA or local bulletin boards and (2) articles to internal newspapers and magazines.

A) h. Demand Savings. Develop a new base peak load saving strategy plan to reduce peak demand electrical consumption and provide a comfortable life at the USNA based on the historical weather and electric consumption data.

8. Responsibilities. The Public Works Officer (PWO), USNA, shall establish policies and guidelines for the program. Responsibilities shall be delegated as follows:

a. The Energy Management Program Manager is responsible for coordinating the day-to-day actions required by the program. The Energy Management Program Manager shall:

(1) Supervise the program.

(2) Provide information to the PWO on energy conservation, program status, accomplishments, and recommendations for improvements.

(3) Organize and coordinate quarterly meetings of the ECC to review the energy program status, progress, and policies.

(4) Function as the single point of contact for energy related matters.

(5) Disseminate pertinent energy information material to ECC members.

(6) Represent the PWD at workshops, seminars, and meetings on energy matters.

(7) Initiate and manage conservation spot-checks and report incidence of adherence/nonadherence to energy conservation criteria.

b. The ECC, comprised of USNA/NAVSTA First Lieutenants, will:

(1) Review progress and problems and generate ideas for improving the program.

(2) Act as a forum for exchange of information and dissemination of policy and guidance. Enclosure (1) represents some currently accepted conservation practices.

(3) Meet quarterly as scheduled by the Program Manager.

(4) Monitor the Action Plans.

(5) Recommend necessary action to assure compliance with Navy and Department of Defense (DOD) energy policies.

c. First Lieutenants:

(1) Minimize lighting, heating, cooling, and other energy usage in their facilities, consistent with mission requirements.

(2) Ensure that all energy use violations (any facility which does not follow the USNA Energy Resources Conservation Guideline) identified on the ECIR are corrected expeditiously.

(3) Monitor energy usage in all spaces.

(4) Review and validate documented health exceptions and requests for "special" heating or cooling requirements and space heaters.

(5) Carry out conservation practices outlined in enclosures (1) and (2).

(6) Assist the EUD, PWD, in identifying locations to set-up the Energy Display Panel. (A

d. Public Works Department Personnel:

(1) Emphasize the repair of fuel/steam/condensate/water system leaks and proper adjustments during maintenance periods.

(2) Determine the use of each heated building and delete or reduce heat to unoccupied buildings. Secure or reduce heating in buildings during unoccupied weekend and holiday periods, outside ambient temperatures permitting.

(3) Modify water temperature in buildings to the following standards:

(a) Actual measured temperature delivered to the user will not exceed 105° Fahrenheit (F) in toilet facilities without showers or tubs.

(b) Actual measured temperature delivered to the user will not exceed 140° F in toilet facilities with showers and tubs or buildings with a common hot water supply system for wash facilities with and without showers or tubs.

(4) Keep all electrical and mechanical equipment in clean and good working condition (e.g., air filters and fans).

(5) Repair all water/sewage system leaks during maintenance periods.

(6) Ensure all utilities are checked and secured after the maintenance and cleaning crews have left the working area.

(7) Keep fleet tires properly inflated.

(8) Keep fleet engines in top shape.

(9) Use the proper grade gasoline.

(10) Reduce use of water for vehicle washing to a minimum.

e. The Energy Branch, EUD:

(1) Prepare DEIS-II reports and monthly graphic records of energy consumption as related to goals. (R

(2) Ensure that all design projects are in accordance with energy conservation guidelines.

(3) Coordinate operation and maintenance improvements and develop energy projects for short- and long-range energy conservation.

(4) Initiate documents for energy related projects.

(5) Pursue contract document preparation.

(6) Provide technical assistance to division representatives to develop energy conservation programs and act as a primary information source.

(7) Develop recommended energy-conscious operating procedures for environmental systems (heating/cooling).

(8) Coordinate trouble calls for heat, air conditioning, hot water, etc., as they affect energy conservation.

(9) Monitor energy use and recommend/take action necessary to meet both use and budget goals.

(10) Conduct lighting surveys of all facilities to ensure conformance with lighting standards of 50-foot candles at work stations, 30-foot candles in work areas, and 10-foot candles in nonwork areas.

(11) Develop and implement a plan for load shedding of electrical demand to avoid electrical consumption peaks during summer months. Reference (c) provides guidance for complying with the local electric company requirements for reduced electrical demands.

R) (12) Maintain an Energy Conservation Hotline where individuals can report energy conservation ideas and violations during work hours. Hotline number is (410) 293-1091.

(13) Review with the Security Office all security lighting requirements to reduce the number of outside lights used.

(14) Screen all requests for air conditioning to assure conformance with DOD criteria.

(15) Develop a Preventive Maintenance Program for the Central Heating Plant and high temperature hot water distribution system.

(16) Investigate the feasibility of implementing a peak shaving program.

A) (17) Identify where to save energy in existing facilities and how energy is currently being used.

A) (18) Develop a Preventive Maintenance Program to reduce energy use by catching and correcting excessive energy use before long-term losses occur.

f. Housing:

(1) Provide a monthly status report of all vacant housing to the EUD to ensure that:

(a) All electrical water heaters, water fixtures, and lights are turned off.

(b) Heat is adjusted to consume a minimum of energy to prevent freezing.

(c) All air conditioners are secured.

(d) All windows and doors are closed.

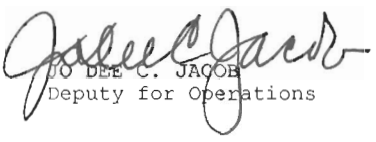
(2) Establish a Tenant Educational Program by promoting the energy conservation needs and by providing guidance to save energy.

(3) Monitor energy usage and recommend/take action.

(4) Encourage tenant cooperation through suggestions and discussions.

A) (5) Develop a Preventive Maintenance Program to replace all conventional type shower heads, faucets, and toilets with 2.0 gallon per minute or less low-flow showerheads and faucets, and 1.6 gallon per flush ultra low-flush toilets.

A) (6) Replace all interior and exterior incandescent lights with high-efficiency, compact fluorescent lamps.



JO DEE C. JACOB
Deputy for Operations

Distribution:
A-I
Building First Lieutenants

ENERGY RESOURCES CONSERVATION GUIDELINES

1. Heating. During the heating season:

a. Set thermostats in office and working spaces no higher than 65°F during working hours and 55°F during night hours (warehouses, 55°F or below day and night).

b. Use radiator valves to maintain authorized temperatures in spaces without automatic temperature controls.

c. Notify the Public Works Service Desk, at ext. 34594, of malfunctioning radiator valves.

d. Keep windows and doors closed.

e. Ensure no portable electric heaters are in use, unless required for medical reasons.

f. Open blinds, shades, and drapes on the sunny side of the building to gather solar radiation during the day.

g. Close blinds, shades, and drapes at night.

h. Transition from cooling to heating should take place when the daily temperatures are consistently low enough to avoid user discomfort and energy losses. Therefore, the following schedule is in effect for the cooling to heating switch at the Naval Academy Complex and Naval Station. (A

Phase 1: Family Housing and Bachelor Quarters: When the average daytime temperature is less than 65°F or the average nighttime temperature is less than 55°F for a 3-day period. (A

Phase 2: Occupied Work Spaces and Medical Facilities: When the average daytime temperature is less than 60°F or the average nighttime temperature is less than 45°F for a 3-day period. (A

Phase 3: Unoccupied Work Spaces: When the minimum temperature is 35°F to prevent freezing. (A

2. Air-Conditioning. During the cooling season:

a. Use manufacturer-specified temperature settings for the cooling of electronic and other equipment.

b. Use personal comfort airconditioning only when necessary to prevent an unsatisfactory working environment.

c. Maintain spaces no lower than 80°F during working hours.

d. Use outside air, mechanical ventilation, drawn blinds, etc., where possible, to maintain satisfactory temperature conditions.

e. Secure all personal comfort airconditioning overnight and individual window units whenever spaces are unoccupied.

f. Do not adjust or tamper with thermostats in buildings with central heating and air conditioning systems. Call the Public Works Department Service Desk, at ext. 34594 if there is a problem.

g. Transition from heating to cooling should take place when the daily temperatures are consistently high enough to avoid user discomfort. Therefore, the following schedule is in effect for the heating to cooling switch at the Naval Academy Complex and Naval Station: (A

Phase 1: Family Housing and Bachelor Quarters: When the average daytime temperature is greater than 80°F and the average nighttime temperature is greater than 65°F for a 3-day period. (A

Phase 2: Occupied Work Spaces and Medical Facilities: When the average daytime temperature is greater than 80°F for a 3-day period. (A

3. Lighting and Electrical Equipment:

a. Secure lights when spaces are unoccupied.

b. Maintain overhead lighting at no more than 50-foot candles at work stations, 30-foot candles in work areas, and 10-foot candles in nonworking areas. The Energy Branch, EUD, will perform the test during the Energy Conservation Inspection to ensure all naval facilities at USNA/NAVSTA, Annapolis, MD, are not over the standard.

c. Reduce all lighting to the minimum level consistent with safety and security conditions during nonworking hours.

d. Operate electrical equipment only as necessary for actual work accomplishment.

e. Turn off electric fans, coffee makers, and other appliances when not required, particularly during peak load periods.

A) f. Replace discolored plastic diffusers in fluorescent fixtures. Replace all lamps on a given circuit at about 70% of their average lamp life, adjusted for typical hours per start.

4. Conservation of Water and Sewage:

a. Assure that all water fixtures are turned off when not in use.

b. Report promptly all leaking fixtures to the Public Works Service Desk, at ext. 34594.

c. Substitute cold water for hot water whenever possible.

d. Use stoppers in basins to pool enough water necessary for your task and avoid letting water run down the drain.

e. Reduce water pressure when taking showers.

f. Do not use toilets as flushable trash baskets. Dispose of paper towels, gum wrappers, facial tissues, etc., in proper receptacles.

A) g. Install low-flow showerheads, faucets, and toilets for the existing housing and USNA athletic facilities.

A) h. Replace all internal and external incandescent lights with high-efficiency, compact fluorescent lamps.

5. Gasoline:

a. Avoid "jackrabbit" starts.

b. Drive at a steady speed whenever possible, accelerating and decelerating gradually.

c. Keep a reasonable distance from the car ahead. Constant braking and accelerating requires more gas.

d. Do not idle engine unnecessarily or for periods exceeding 5 minutes. Turn off engine when waiting.

e. Avoid congested traffic if possible. Start-and-stop driving consumes gas quickly.

f. Keep tires properly inflated. Low tire pressure can reduce mileage by a mile per gallon.

g. Minimize use of car air conditioners as they can add 10 percent to fuel consumption.

h. Check your gasoline mileage periodically to see how you and your car are performing.

I. Keep engine in top shape. A poorly tuned engine can reduce mileage by 10 percent.

j. Use the proper grade gasoline.

k. Do not warm up engine by idling (you will get 0 miles per gallon) or by "revving." You can drive off almost immediately after starting and maintain moderate speeds until engine is warm.

FACILITY FIRST LIEUTENANT RESPONSIBILITIES

1. Act as instructor, advisor, and monitor of energy conservation in assigned area.

2. Solicit cooperation of space occupants to achieve goals of reduced energy consumption. Continually monitor spaces to eliminate energy waste.

3. Become familiar with the locations of all energy-consuming equipment, light, heat, and airconditioning controls, etc., in the area.

4. Check for excessive lighting, ensure maximum use of natural light, and ensure that established guidelines pertaining to reduction are implemented as stated in enclosure (1).

5. Ensure that heating and airconditioning temperatures are kept at designated levels (65°F heating, 80°F airconditioning). Request installation of thermometers if necessary.

6. Instruct occupants to turn off equipment and lights when not in use.

7. Ensure equipment and lights in vacant spaces; e.g., storerooms, are adjusted to consume a minimum of energy.

8. Remove all unauthorized electric space heaters.

9. Ensure that responsibility is assigned to individual occupants for securing lights and equipment at the end of the workday and before weekends and holidays.

10. Periodically check for malfunctioning equipment, leaky faucets, drafts from doors and windows, etc., and ensure necessary corrective action by notifying the Service Desk, at ext. 34594.

11. Identify yourself as the Building Monitor for a given space when requesting services from the Public Works Trouble Desk, thus enabling desk personnel to promptly identify, log, and correct the request.

12. Encourage cooperation from occupants through suggestions and discussions.

13. Request advice and guidance from the Public Works Energy Branch Manager, ext. 31091 in the event of problems, human or mechanical, beyond your control. (R

14. To ensure that energy conservation is being practiced, the ECC members will make random inspections of various facilities. Repeated violations will be noted and brought to the attention of the appropriate division director or supervisor.

15. Report all irrigation equipment leaks to EUD, PWD, at ext. 31091. (A

16. Report all defective Heating, Ventilation, and Airconditioning controllers such as thermostats, valves, and dampers to the building First Lieutenant. (A